# INTELLECTUAL OBSERVER

BEAUTIFUL
AND OTHER

SCIENTIFIC
PLATES

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# INTELLECTUAL OBSERVER:

A REVIEW OF NATURAL HISTORY, MICROSCOPIC RESEARCH, AND RECREATIVE SCIENCE;

ALSO

# THE STUDENT,

*BEING THE CONTINUATION OF THE INTELLECTUAL OBSERVER.*

A COLLECTION OF EIGHTY SUPERBLY COLOURED PLATES OF NATURAL HISTORY AND BOTANICAL SPECIMENS,

INCLUDING

*Caterpillars, Fungi, Corals, Geological Subjects, Crustacea, Fossils, Land and Sea Birds, Lepidoptera, Insects, Moths, Fresh and Salt Water Fishes, Flowers, Weeds, Pottery, Coins, Medals, Astronomy, Electricity, and numerous other subjects.*

LONDON.

[illegible] Faulkolt, F.S.A.

1. Glass Lamp with [illegible]
2. Ewer, in [illegible]
3. Gilt Cup, [illegible]
4. Silver Cup [illegible]
5. Cup in black and [illegible] glass (Faulkolt [illegible])

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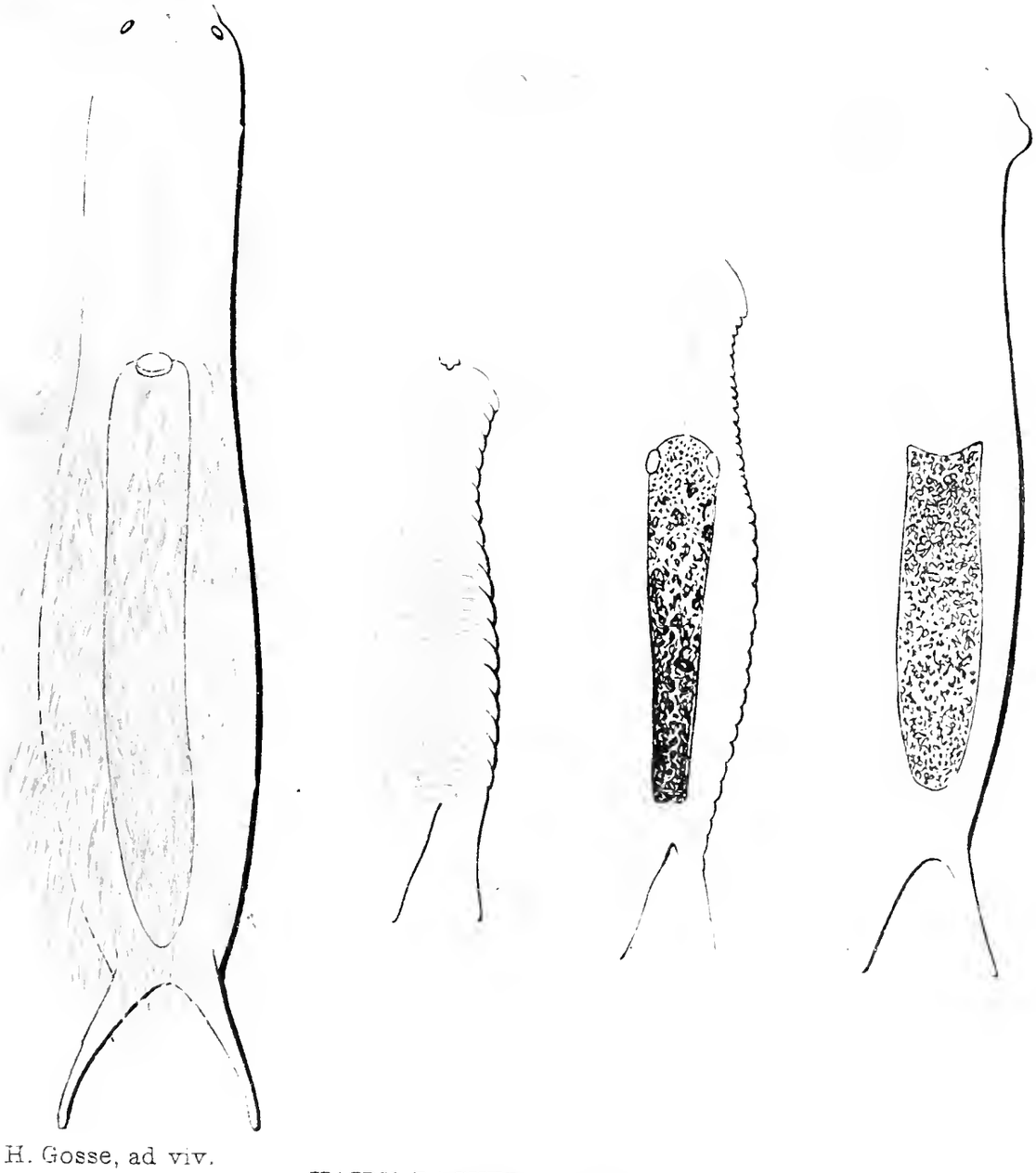
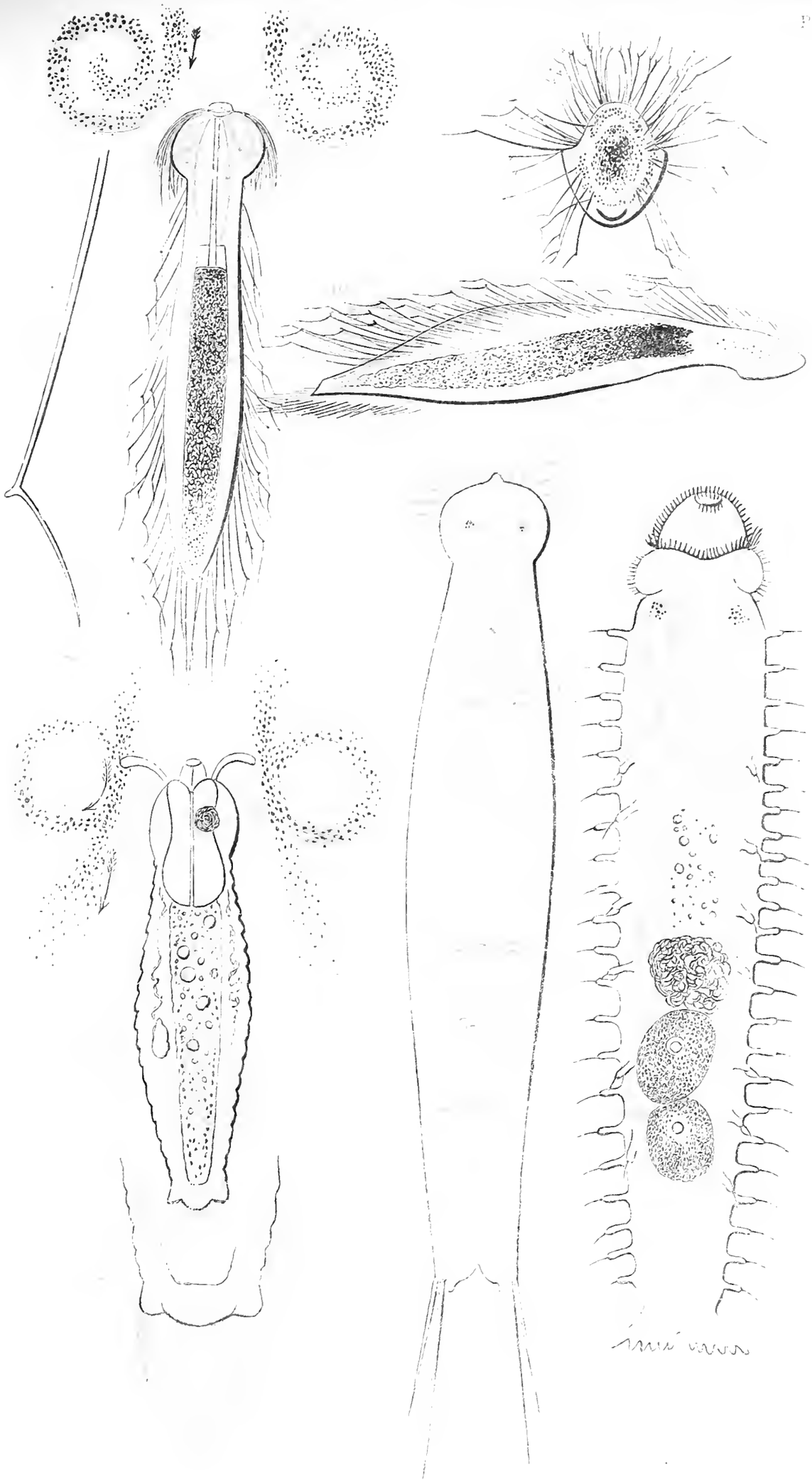


P. H. Gosse, ad viv.

HAIRY-BACKED ANIMALCULES.
Chætonotidæ.

1, Chætonotus larus, crawling on a thread of Conferva; 2, in the act of turning; 3, viewed from above. 4, C. maximus; 5, the mouth and oculiform specks, more highly magnified. 6. C squammatus. 7, C. Slackiæ. 8, C. gracilis. 17, Taphrocampa annulosa, viewed from above; 18, viewed from the left side; 19, ideal transverse section.



P. H. Gosse, ad v.v.

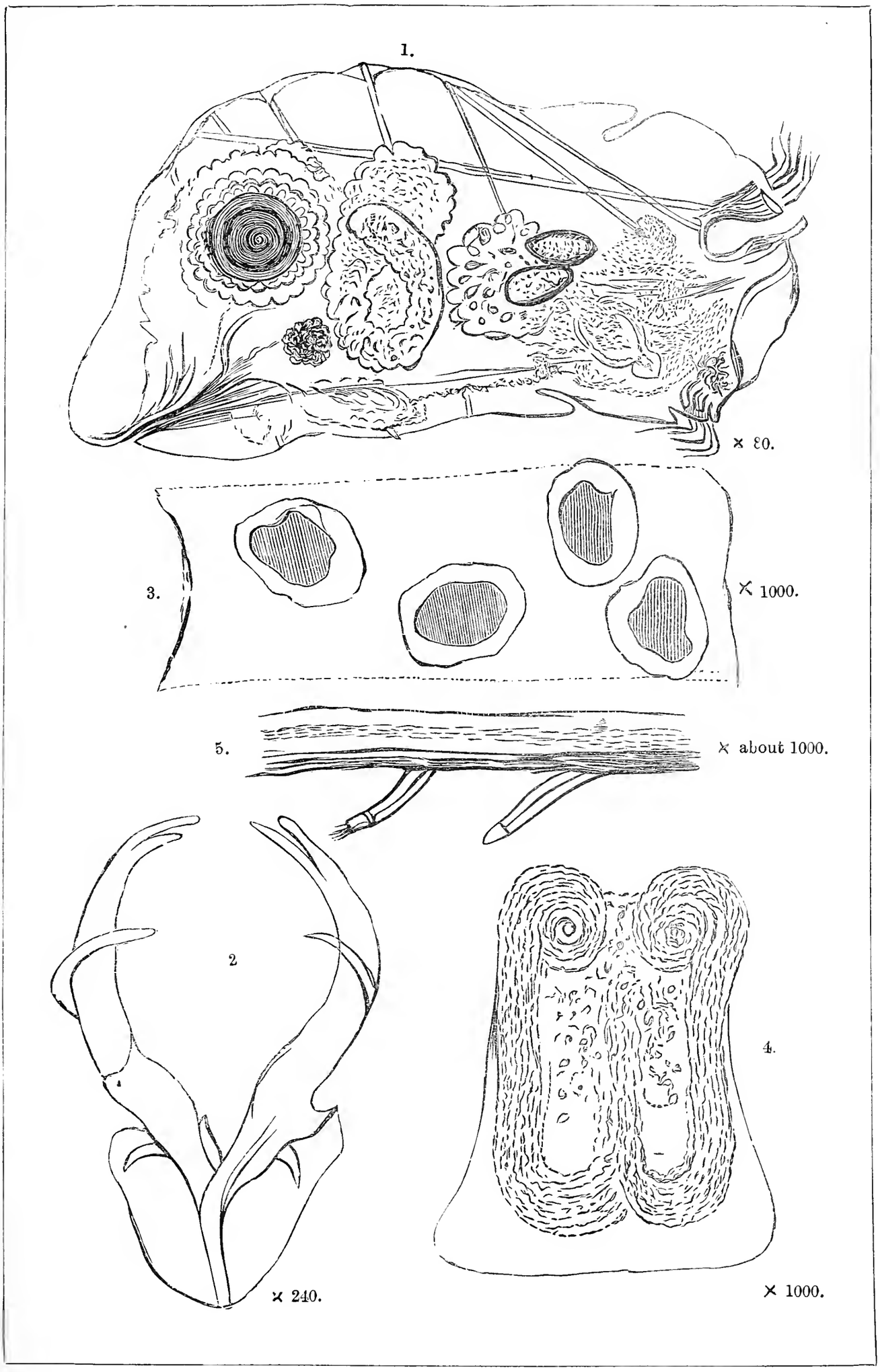
HAIRY-BACKED ANIMALCULES.
Chætonotidæ.

9, Dasydytes goniathrix, viewed from above; 10. viewed from the right side; 11, viewed from the front; 12, one of the bristles greatly magnified. 13, D. antenniger; 14, the caudal pencils more highly magnified. 15. Turbanella hyalina, (after Schulze.) 16. Echinodera Dujardini, (after Dujardin.
N.B.—All the figs., except 5, 13. and 14. are magnified 300 diam., and all, except 15 and 16, are from the life.

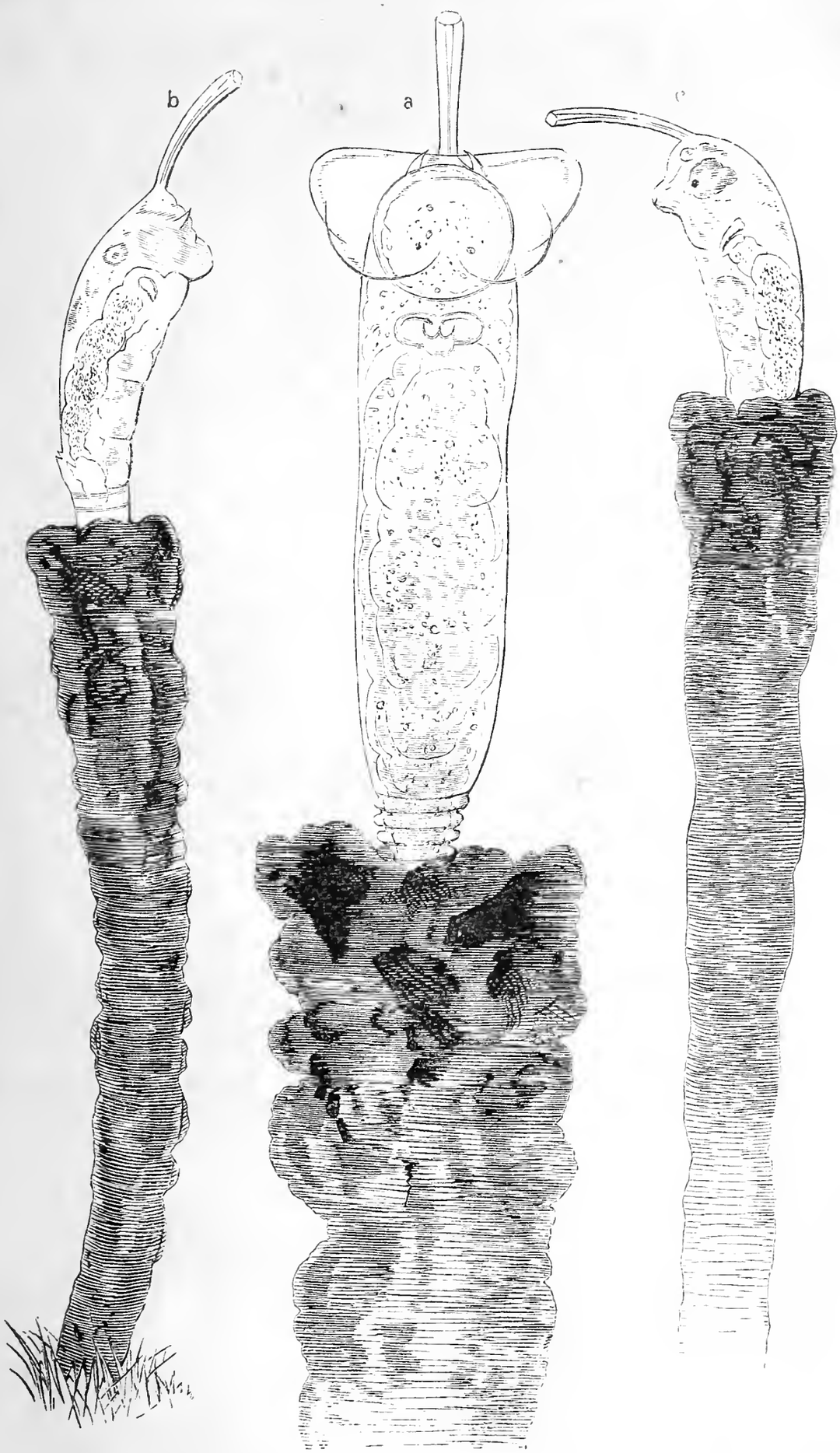
P. H. Gosse, ad viv.

DINOCHARIS COLLINSII.

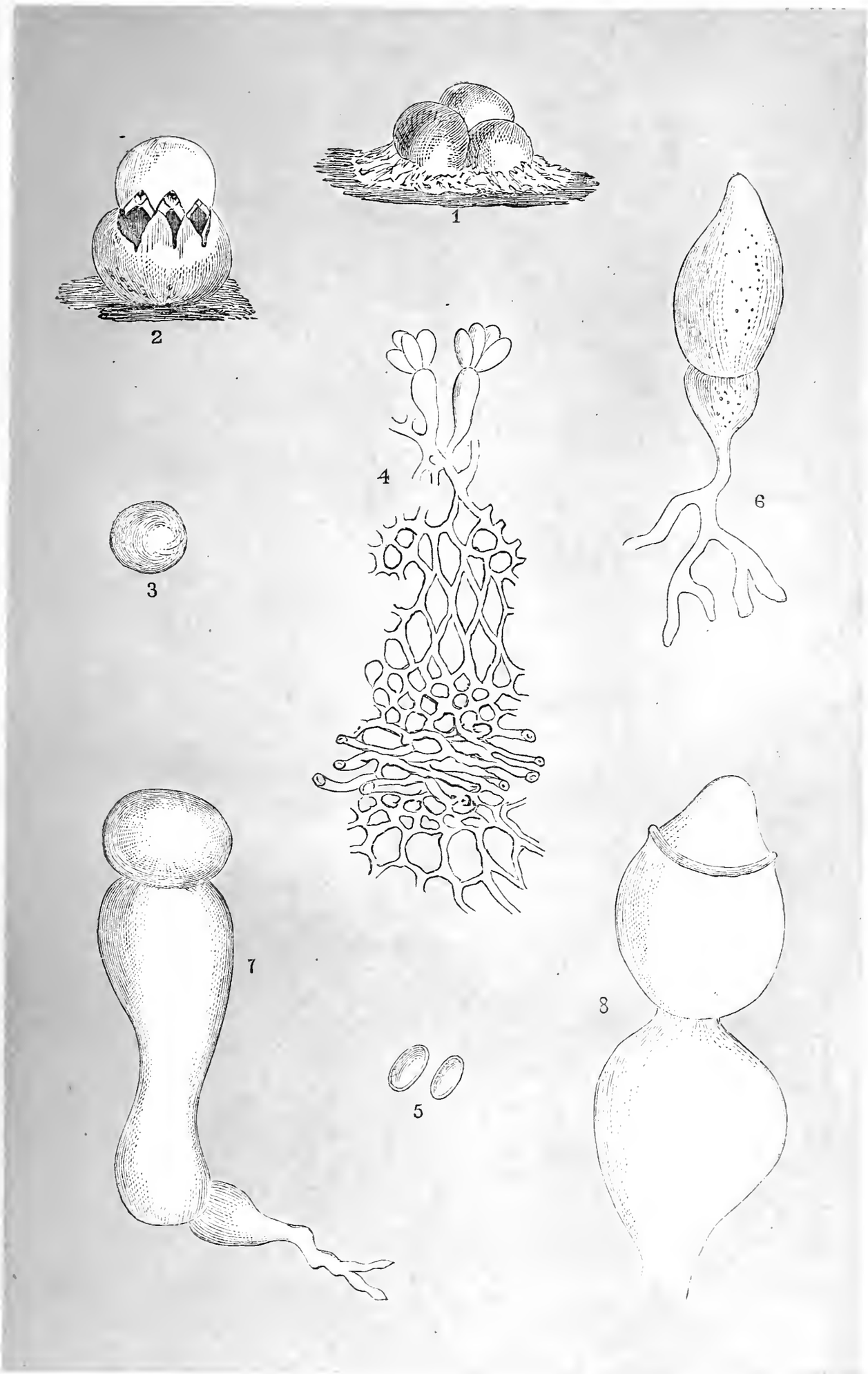
Mag. 400 diam.




ASPLANCHNA BRIGHTWELLII.

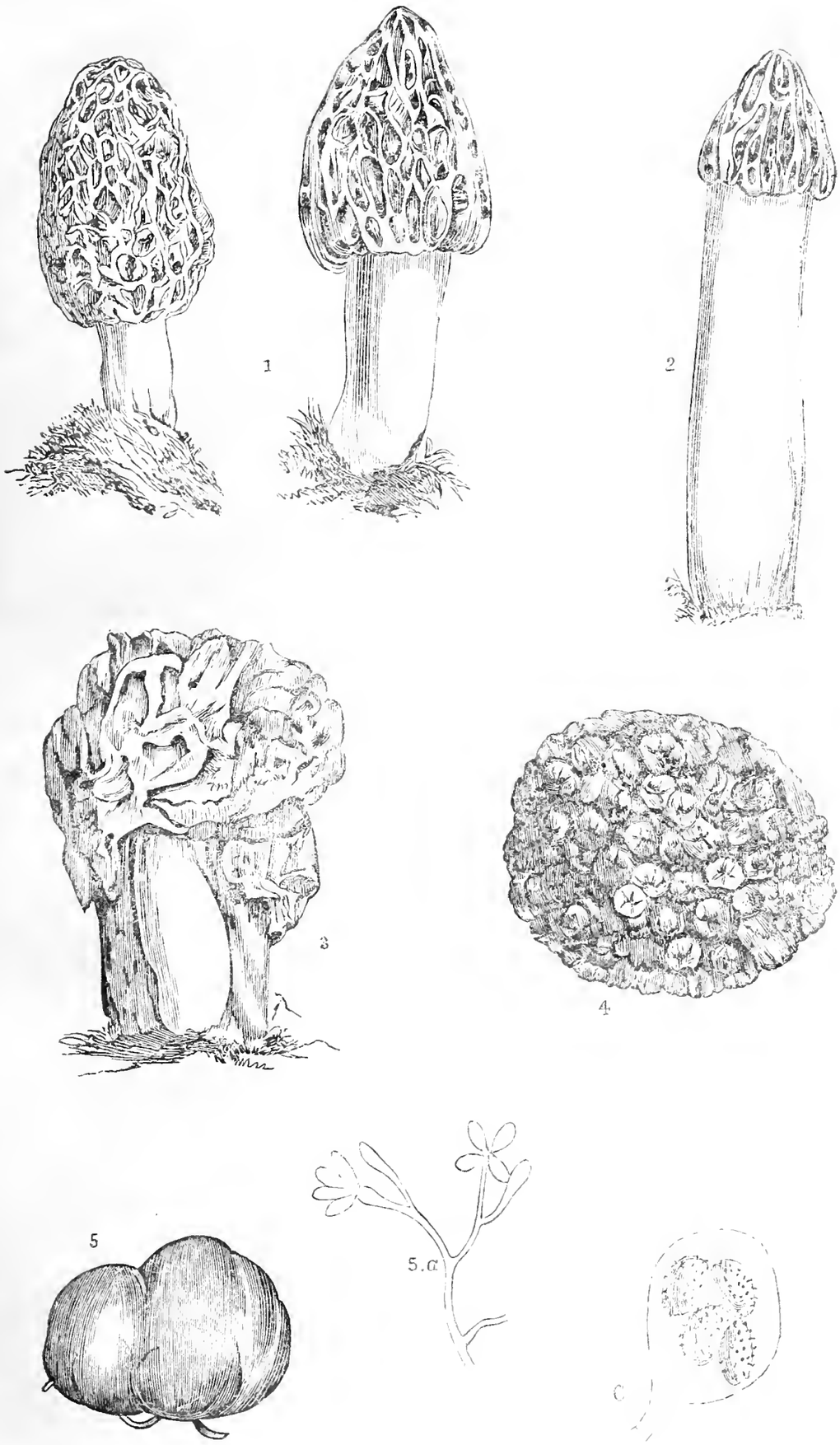



Cephalosiphon limaciae.




VEGETABLE MORTARS.

Sphærobolus stellatus. fig. 1 to 5.
[illegible]

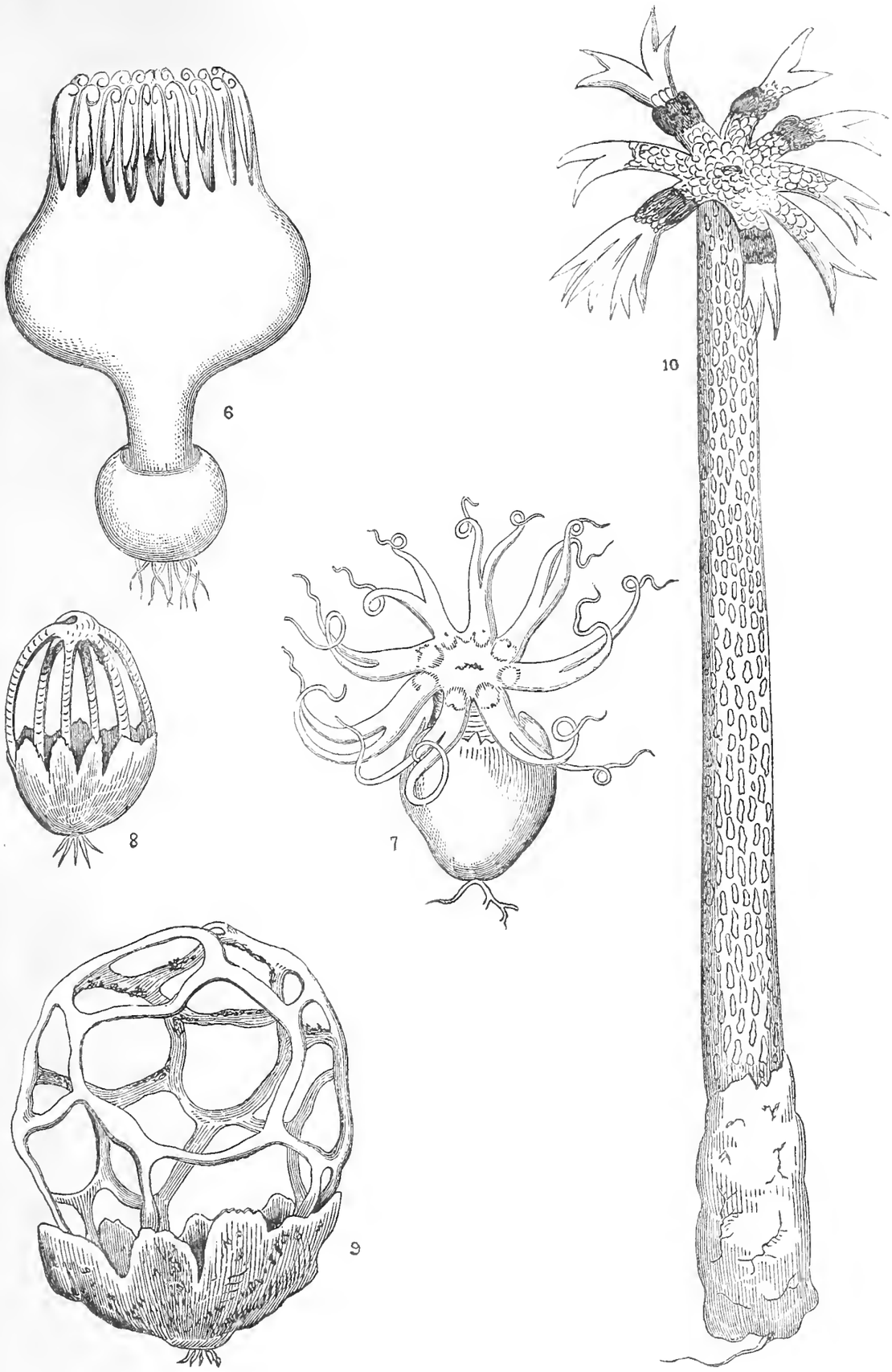



TRUFFLES AND MORELS.

1.—Morchella esculenta.
2.—Morchella hybrida.
3.—Gyromitra esculenta.
4.—Tuber œstivum.
5.—Melanogaster variegatus.
6.—Ascus of Tuber rufum.

FERRUGINOUS SPORED AGARICS.

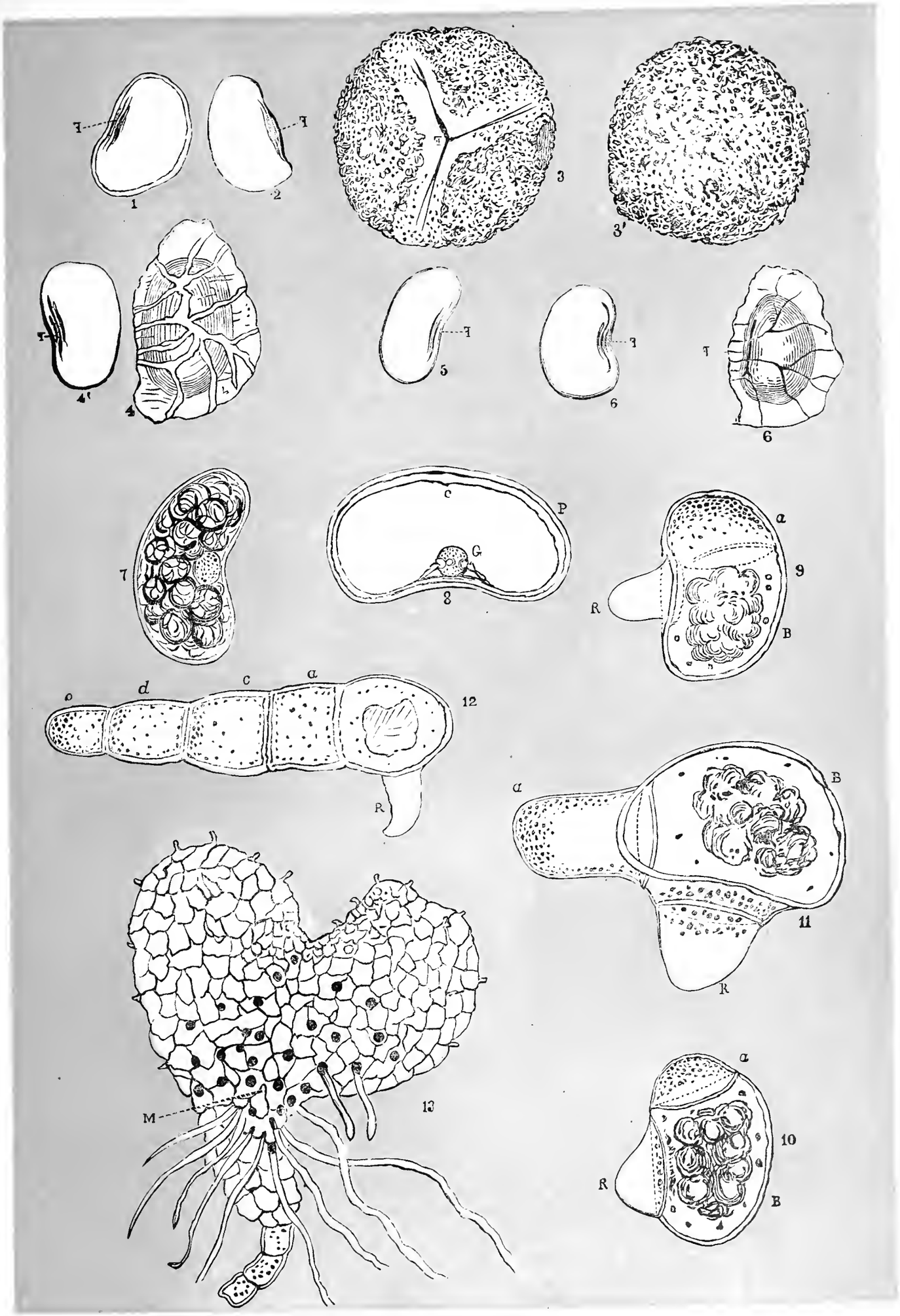
1. Agaricus Arrhenii. Fr. ⅔ nat. size.
2. —— præcox. P. ⅔ nat. size.
3. —— pudicus, Bull. ⅔ nat. size.
4. —— versipellis. Fr. ½ nat. size.
5. —— flocculosus. Berk. Nat. size.
6. Agaricus sapineus. Fr. Nat. size.
7. —— erinaceus, Fr. Nat. size.
8. —— apalus. Fr. ½ nat. size.
9. —— odoratus, Batsch. Nat. size.




EGG FUNGI.

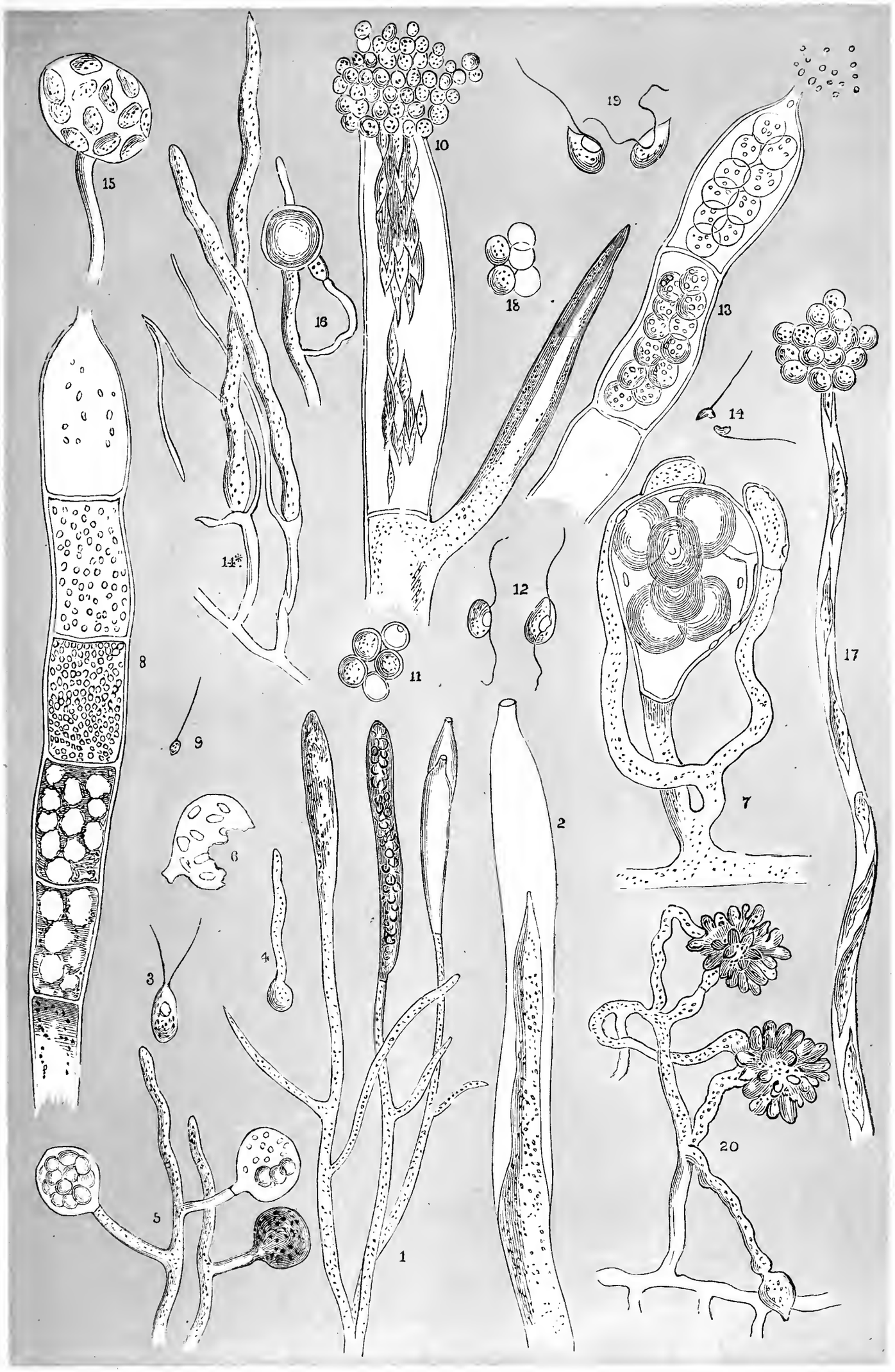
(Plate II.)

6.—Calathiscus sepia, Mont.
7.—Aseröe viridis, Berk. and Hook, fil.
8.—Clathrus pusillus, Berk.
9.—Ilcodictyon gracile, Berk.
10.—Lysurus aseröeformis, Corda.



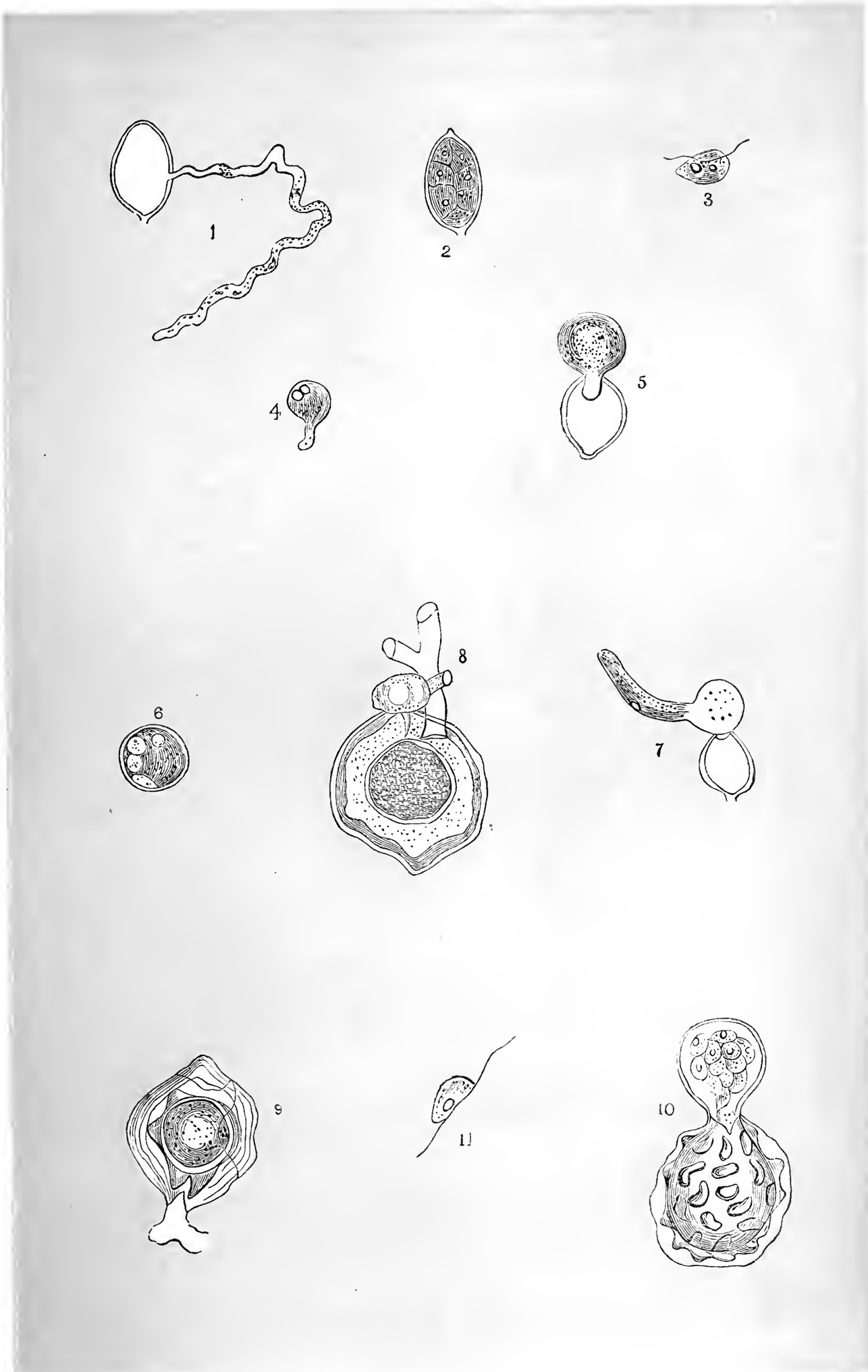

GERMINATION OF FERN SPORES.

1. Spores of Lastræa dilatata. 2. Spores of L. filix-mas.
3. Osmunda regalis. 3' Back of same. 4. Polypodium phegopteris. 4'. When young.
5 Platycerium alcicorne, and 7, 8, 9, to 13. 6. Lastræa rigida.
6'. The same young. 7 to 13. Progressive development of Platycerium alcicorne.
A. First new cell. B. Old cell. G. Primary vesicle and germ.
F. Foramen. R. Radia. P. Extine. M. Fern always appears here.

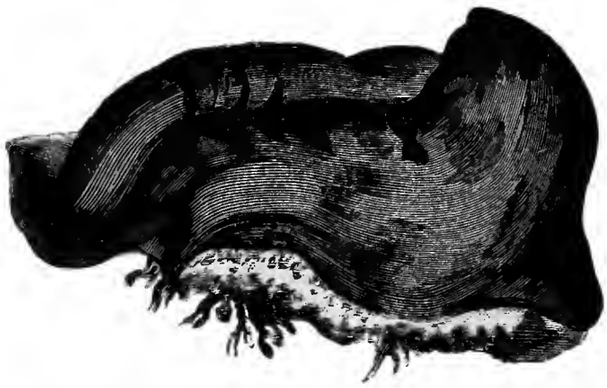


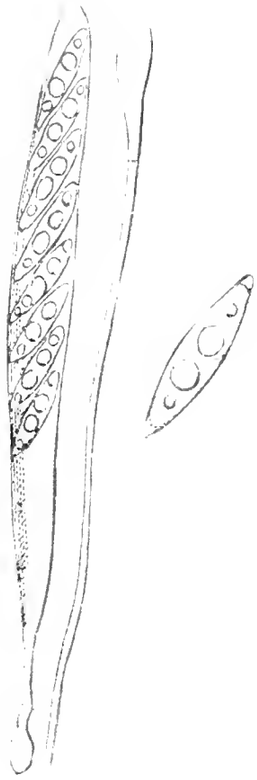

EGG PARASITES.

1, 2, 3, 4, 5, 6, Saprolegnia ferax. 7, S. monoica. 8, 9, S. dioica.
10, 11, 12, Achlya prolifera. 13, 14, A. dioica. 14,* 15, 16, Pythium monospermum.
17, 18, 19, 20, Aphanomyces stellatus.

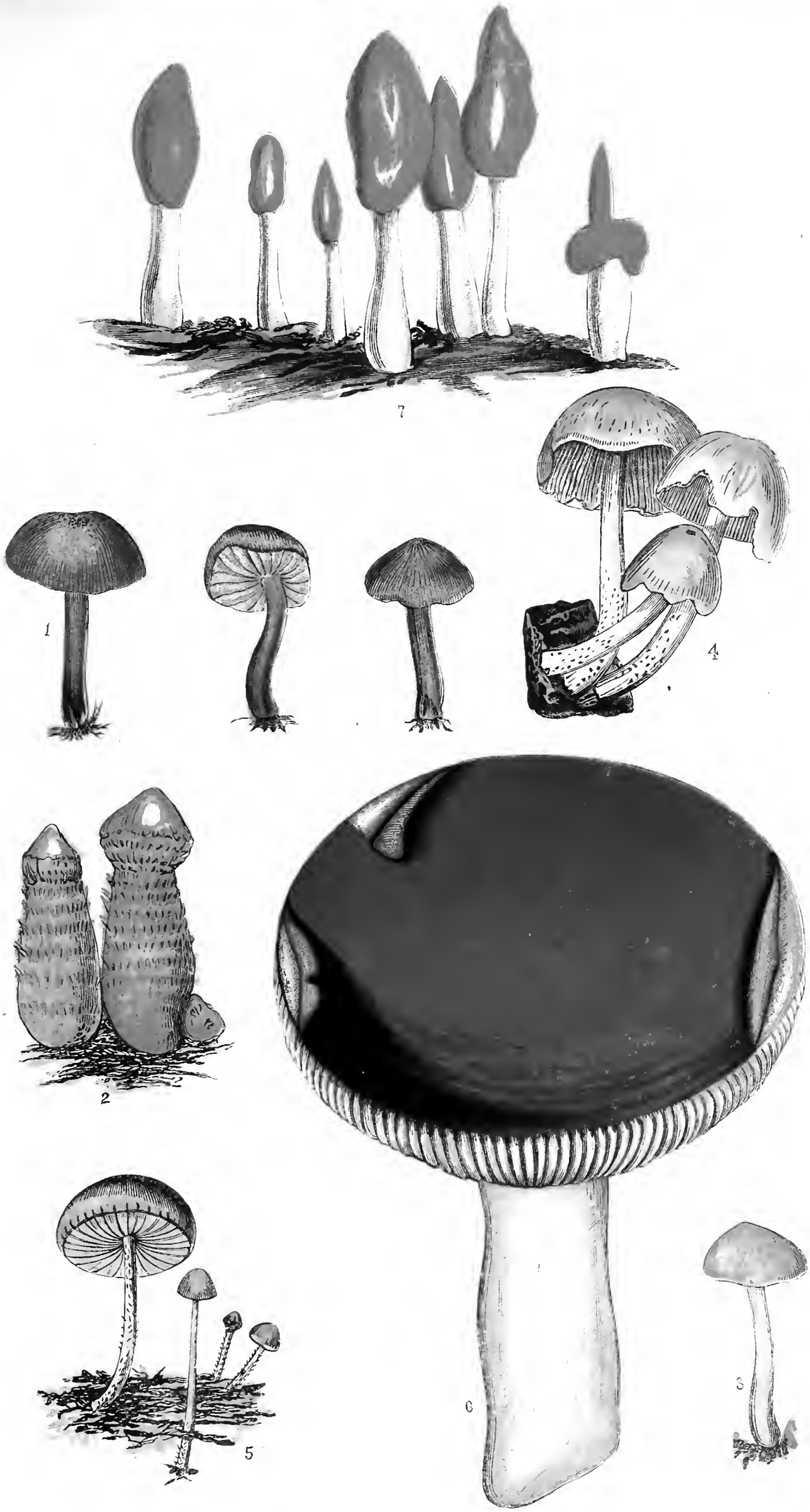



Resting Spores of Fungi.



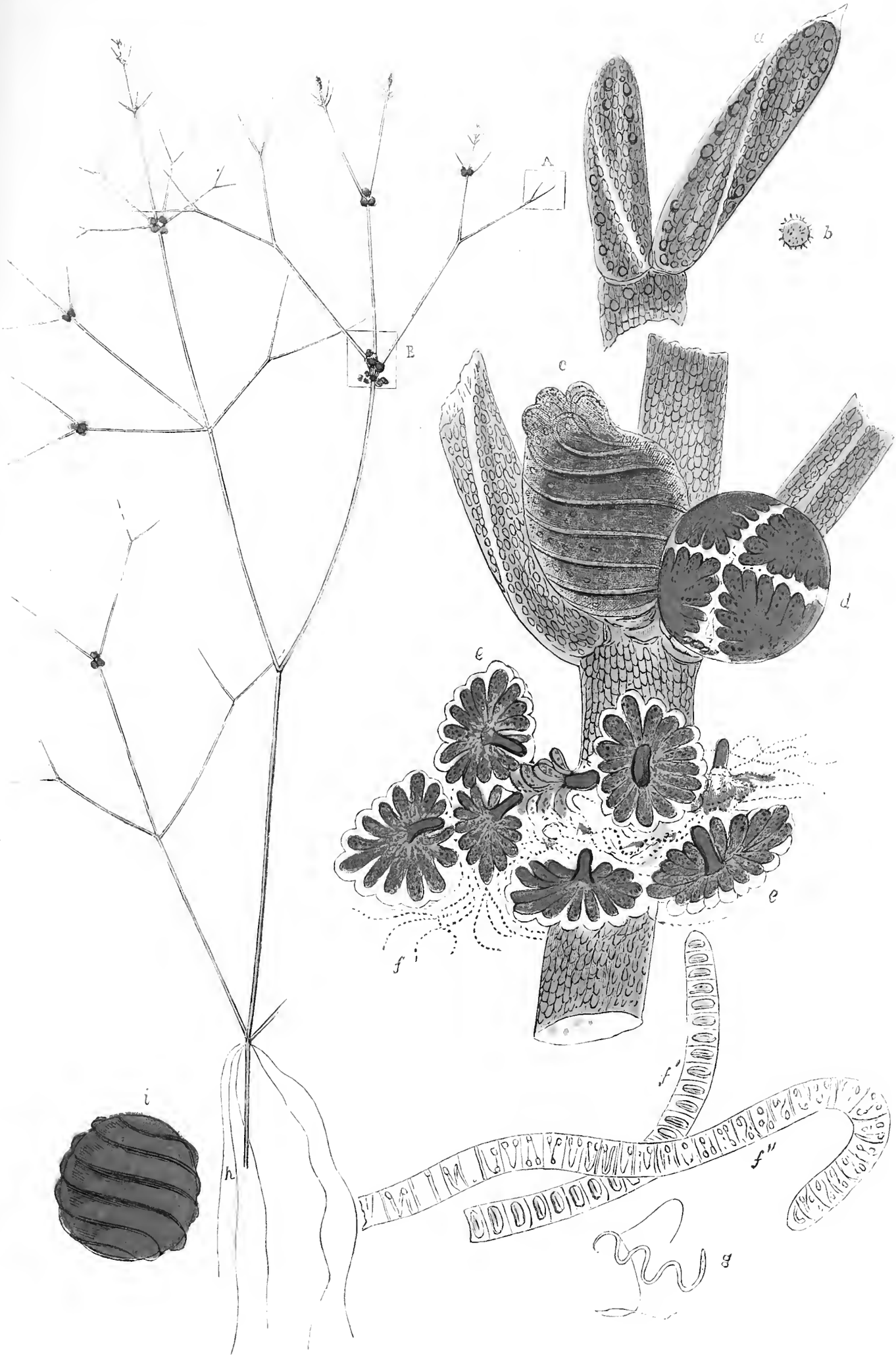


1. Sparass s crispa. 2. Rhizina undulata.




FUNGI.

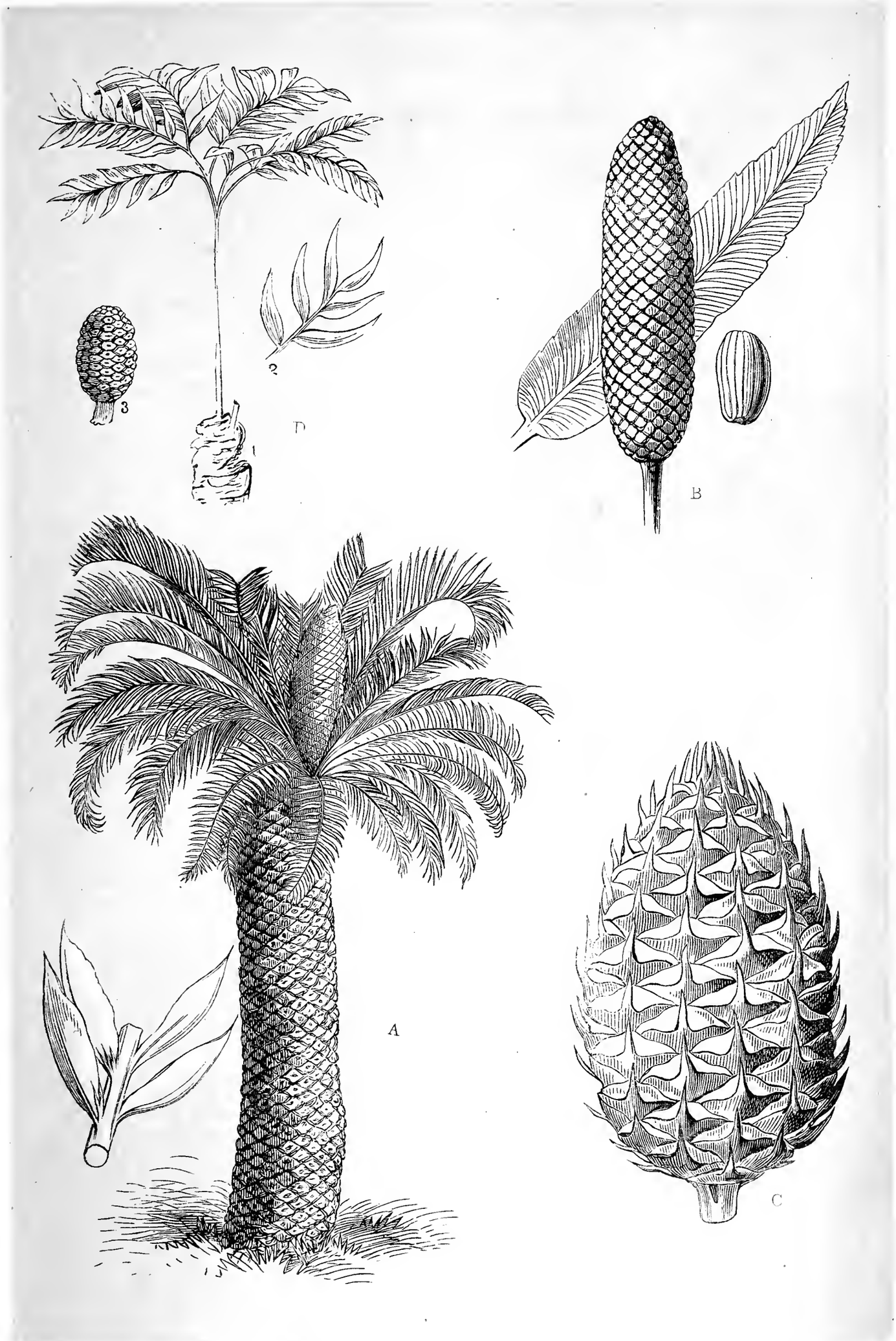
1.—Agaricus incanus, Fr. var.
2.—Agaricus flammans, Fr.
3.—Agaricus albo-cyaneus, Desm.
4.—Agaricus appendiculatus, Bull.
5.—Agaricus bullaceus, Bull.
6.—Russula emetica, Fr.
7.—Mitrula paludosa, Fr.




NITELLA TRANSLUCENS.

(Natural size.)

a. b. Portions of Stem, (as at A. B.) mag. 25 diam. *f'* Antheridial Filaments, with immature Antherozoids, 450 diam. *f''* Mature ditto, 450 diam. *g* Detached Antherozoid after Dr. Carpenter, about 800 diam. *i* Nucule seed.




CYCADS.

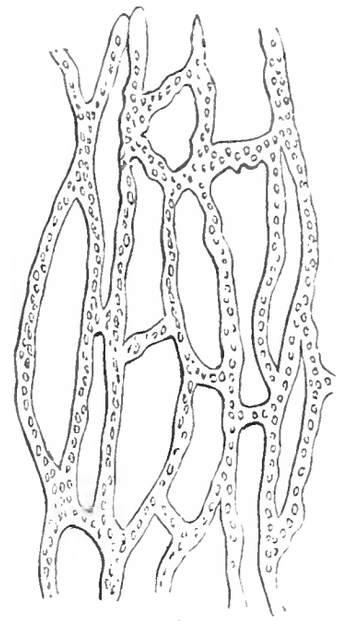
Fig. A. Encephalartus Caffer, Lehm.

Fig. B. Male cone of Stangeria paradoxa, Moore. With seed and leaflet quarter natural size, showing venation.

Fig. C. Female cone of Macrozamia spiralis.

Fig. D. Bowenia spectabilis, Hook. 1. General appearance of plant. 2. Form of leaves. 3. Male cone half natural size.

2



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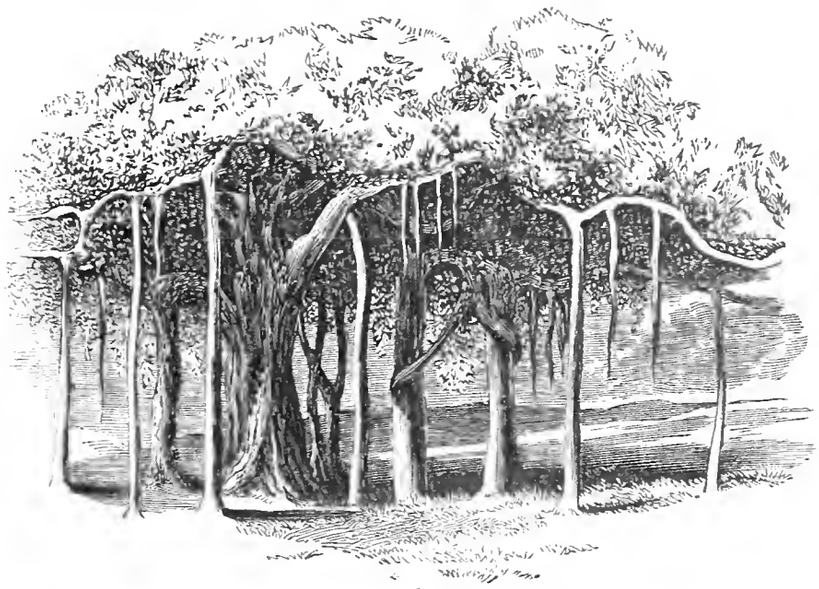

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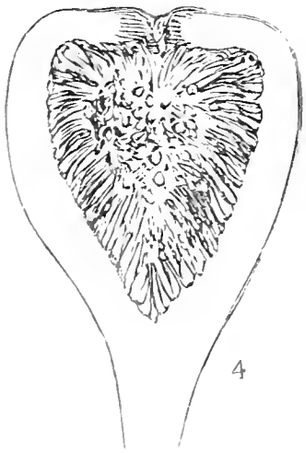

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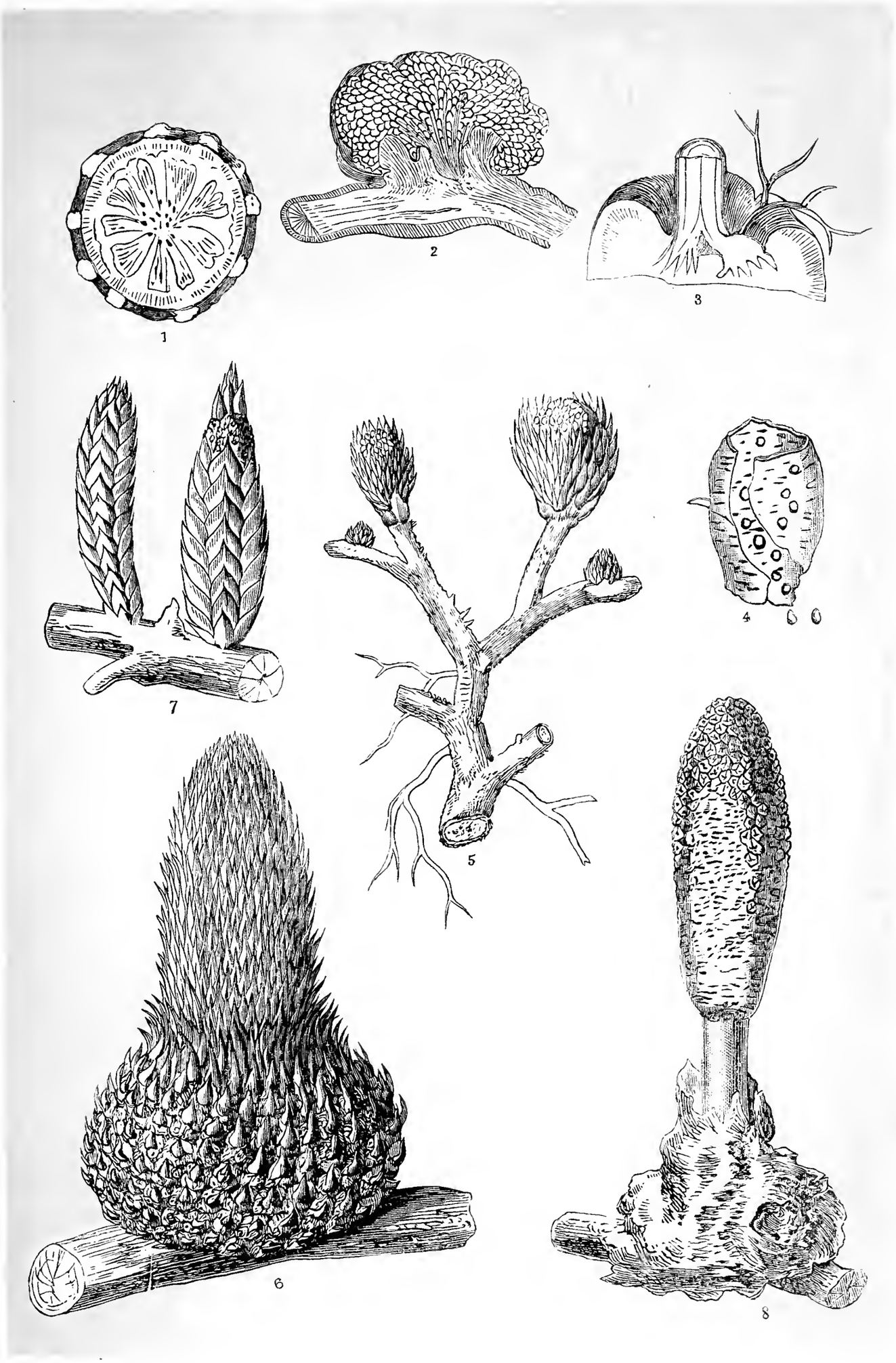
5

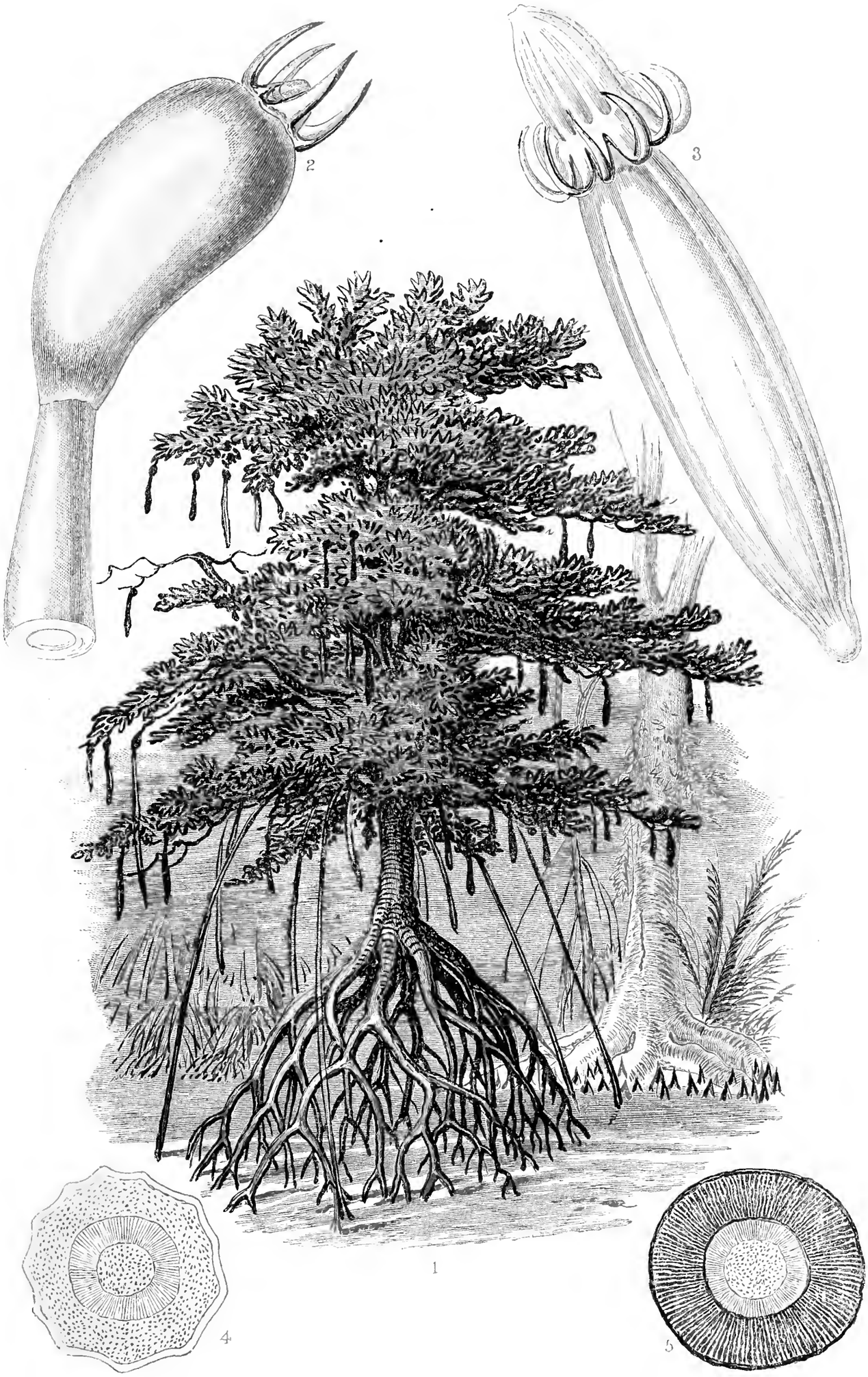
THE GENUS FICUS.

1.—Banyan tree, (Ficus Indica, L.)
2.—Palm encircled by F. Indica.
3.—Laticiferous tissue of F. elastica, Rox.
4.—Section of Common Fig, F. carica, L.)
5.—Open receptacle of Dorstenia contrayerva, L.



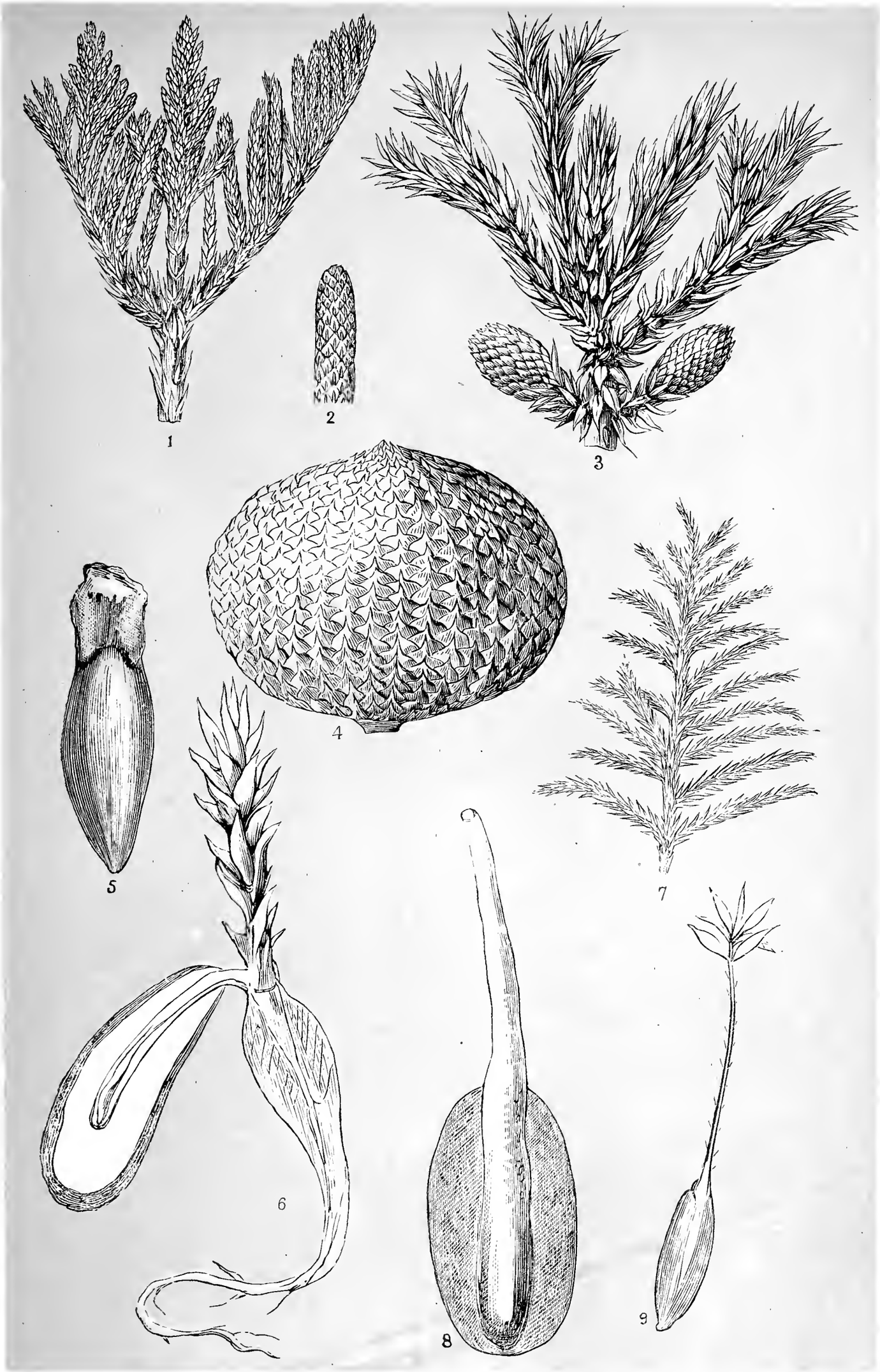

BALANOPHORACEÆ.

1. Transverse section of rhizome of Balanophora involucrata. H.f.
2. Vertical section of Helosis Mexicana, shewing its attachment to the root.
3. Vertical section of Langsdorffia rubiginosa, shewing its attachment to the root.
4. Single cell from cellular tissue magn[illegible] shewing wax globules.
5. Portion of a plant of Langsdorffia rub[illegible]
6. Plant of L[illegible] H.f.
7. Male plant of [illegible] H.f.
8. Male plant of [illegible]

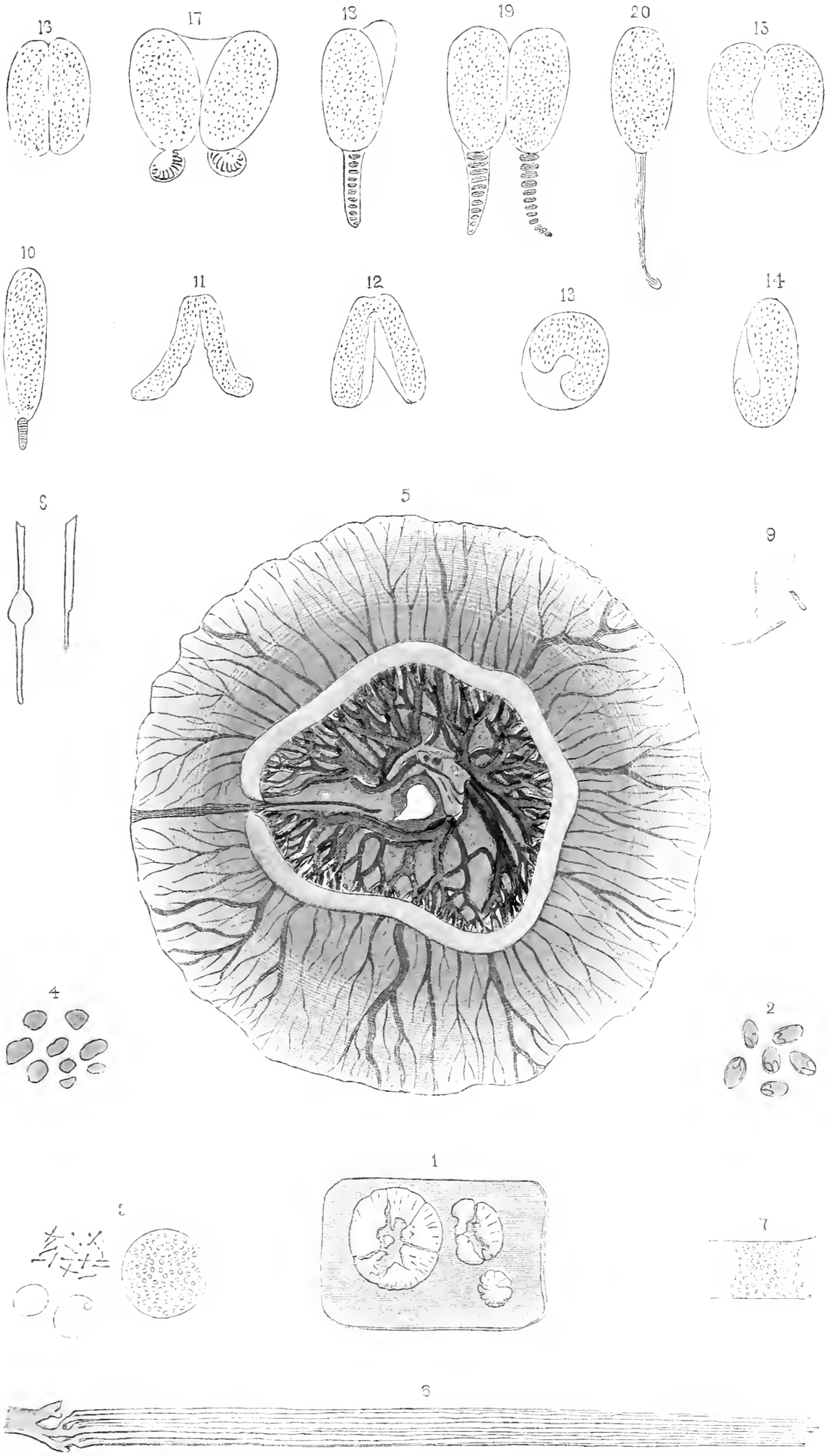



MANGROVES.

Rhizophoraceæ.

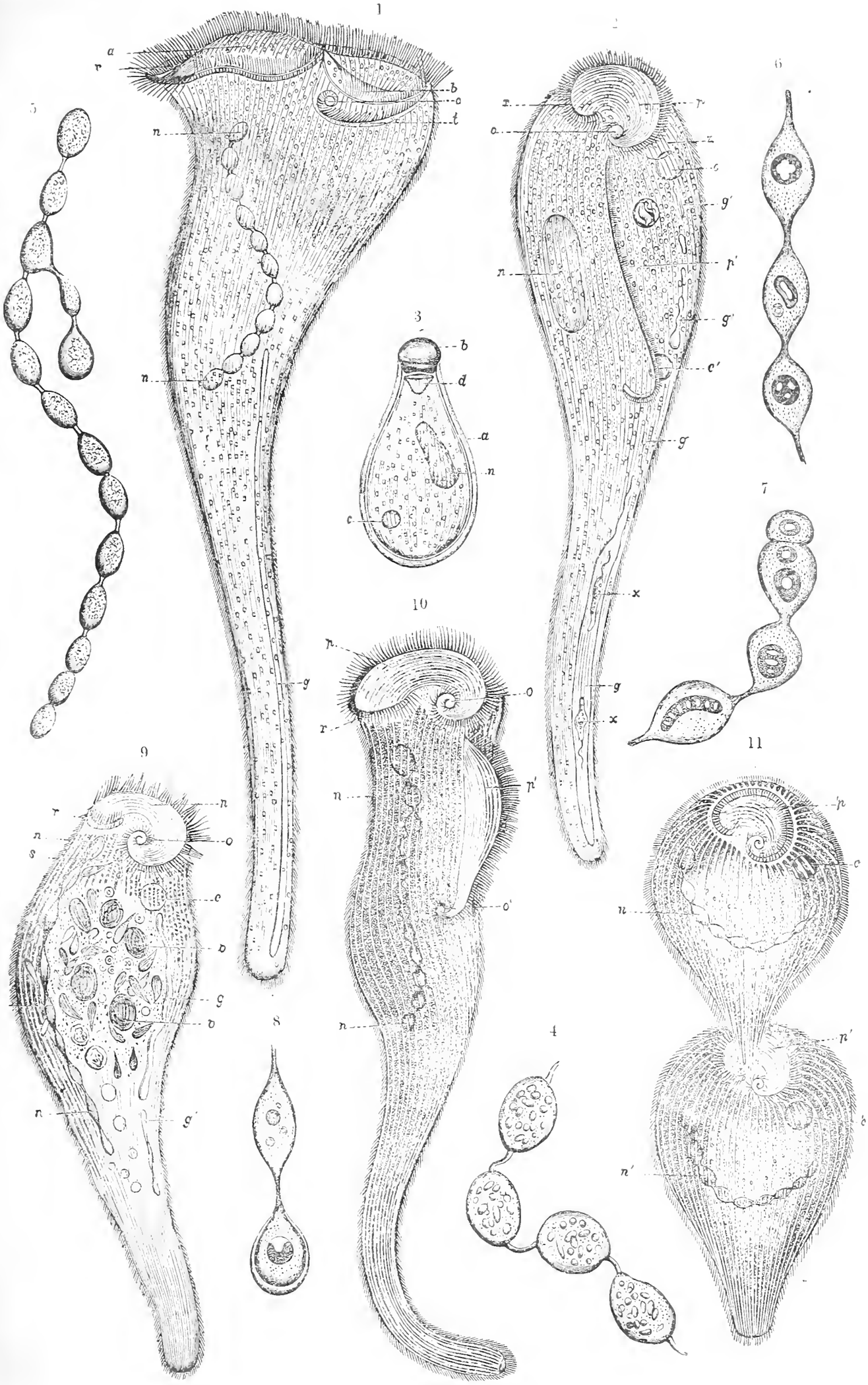



ARAUCARIA.

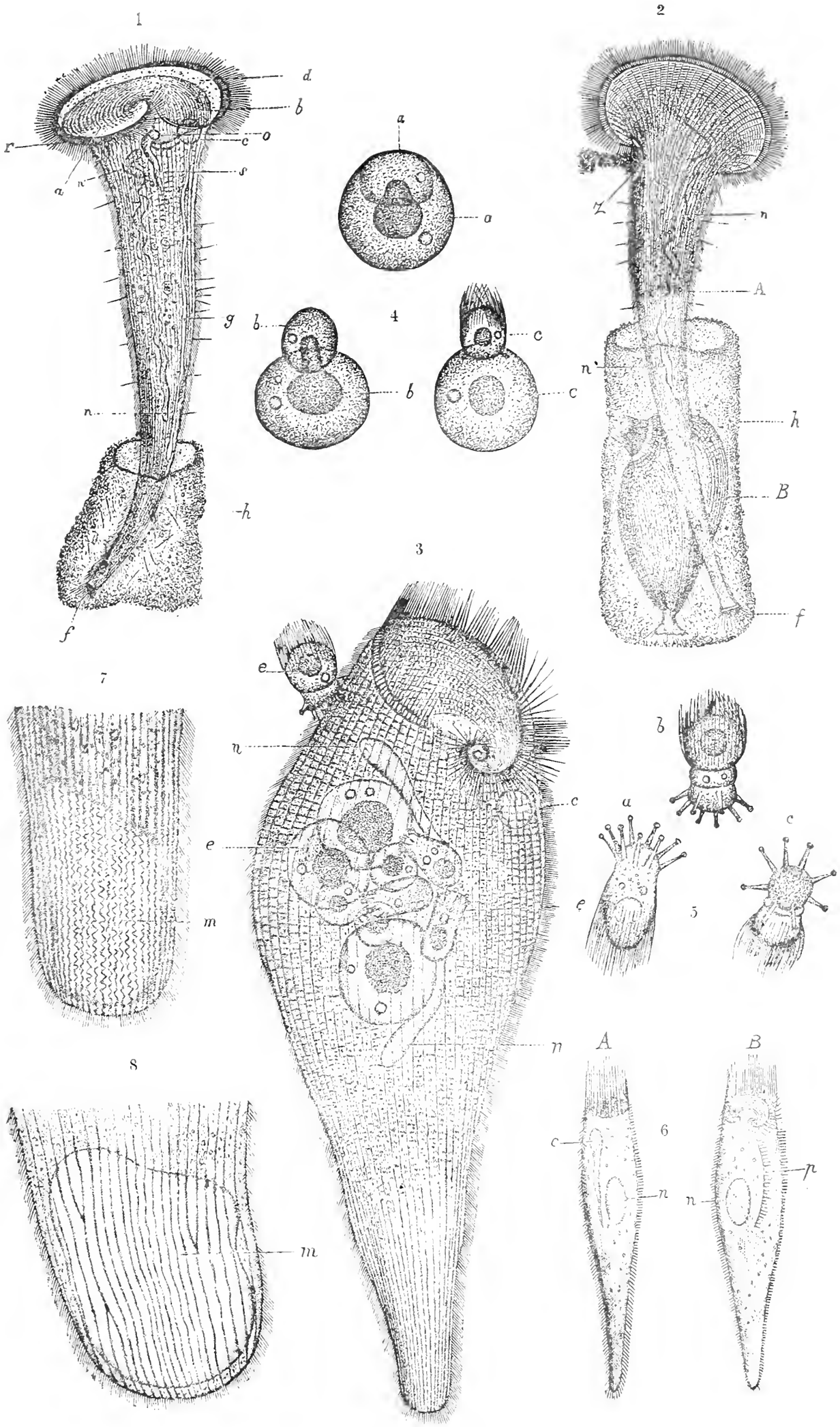



T. S. Gilbert del.

Choroid, cells of the lamina, [illegible] &c.




STENTOR POLYMORPHUS FIG. 1 TO 8.
S. COERULEUS FIG. 9. 10. 11. (After Stein.)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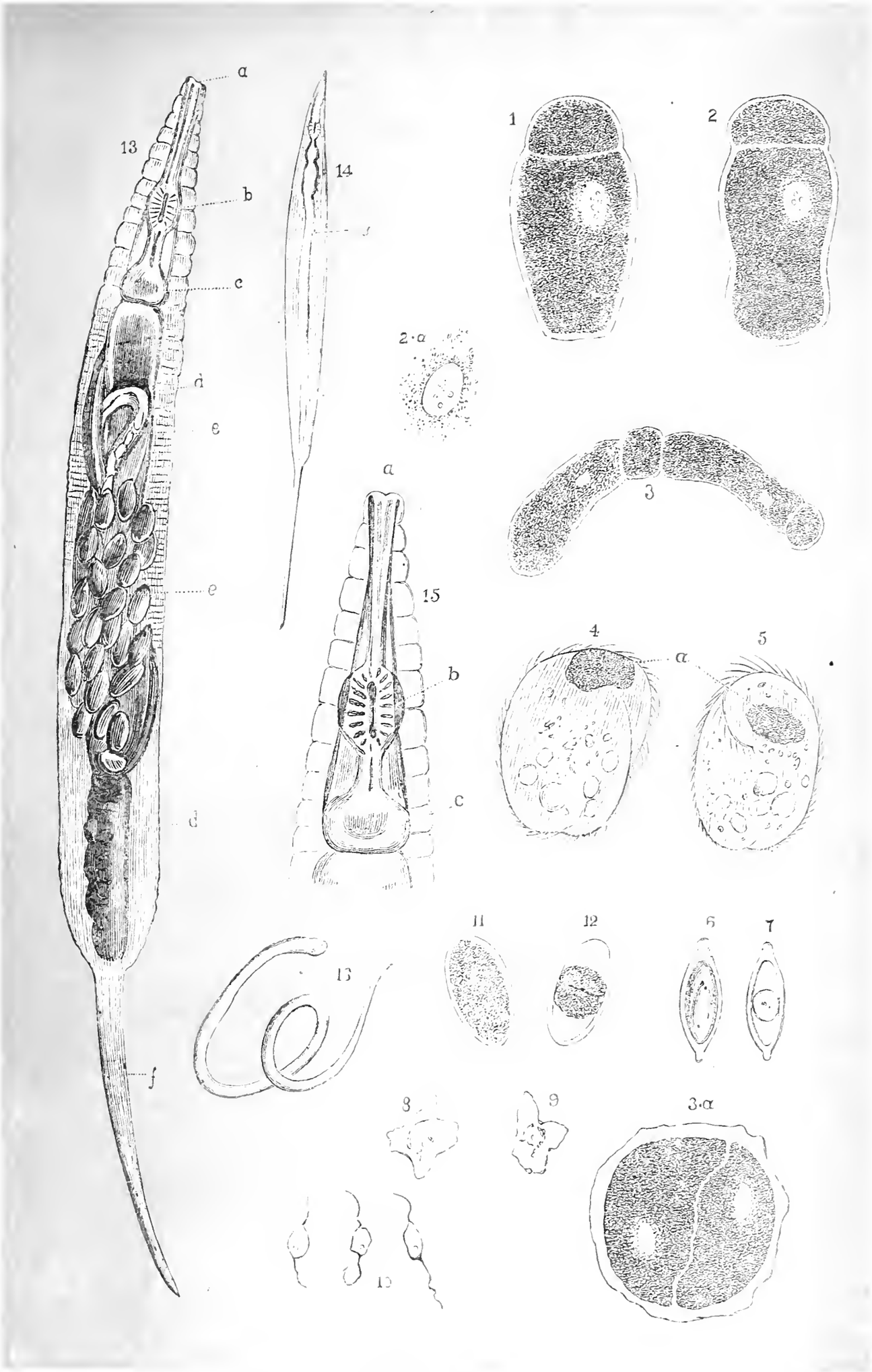
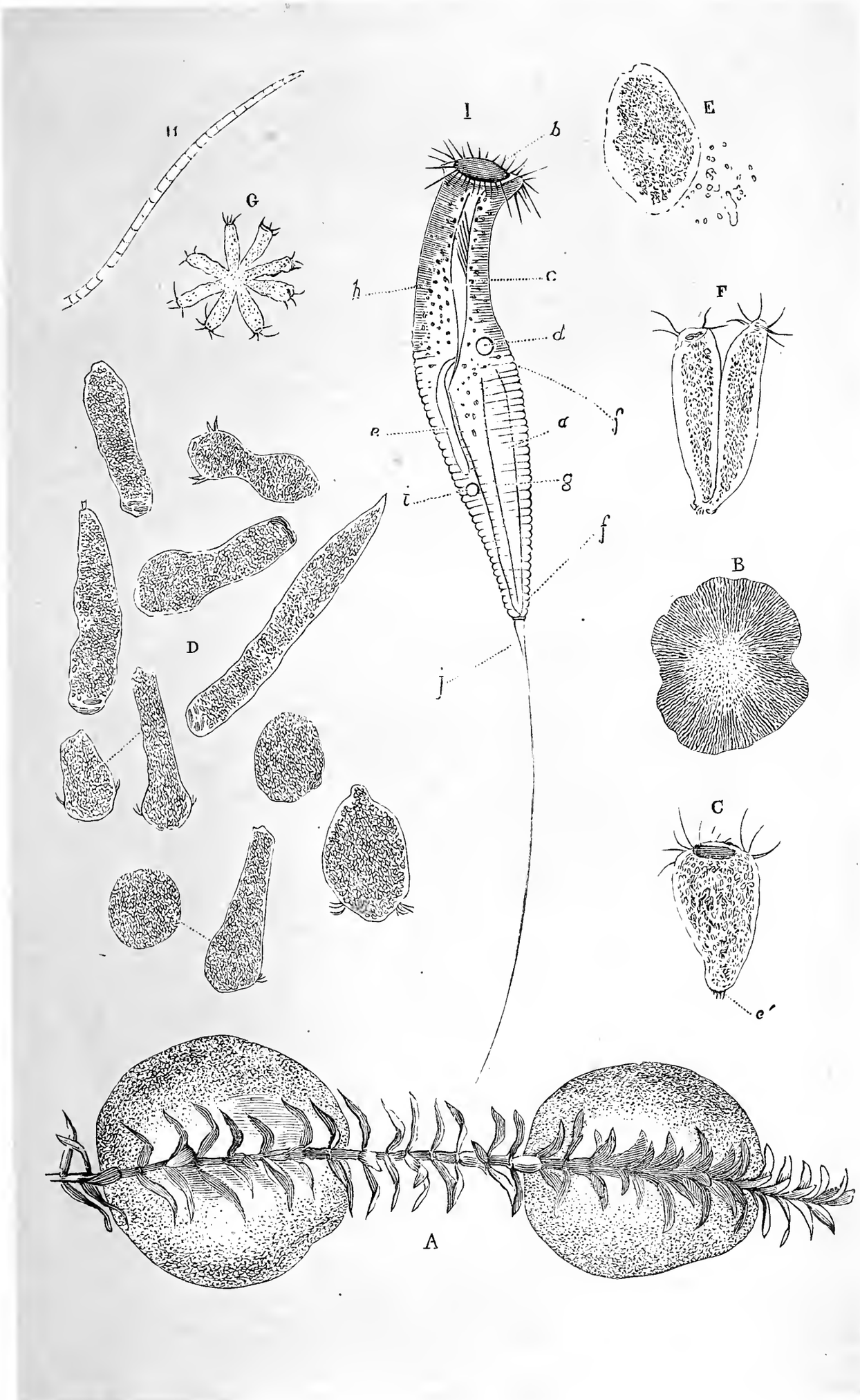
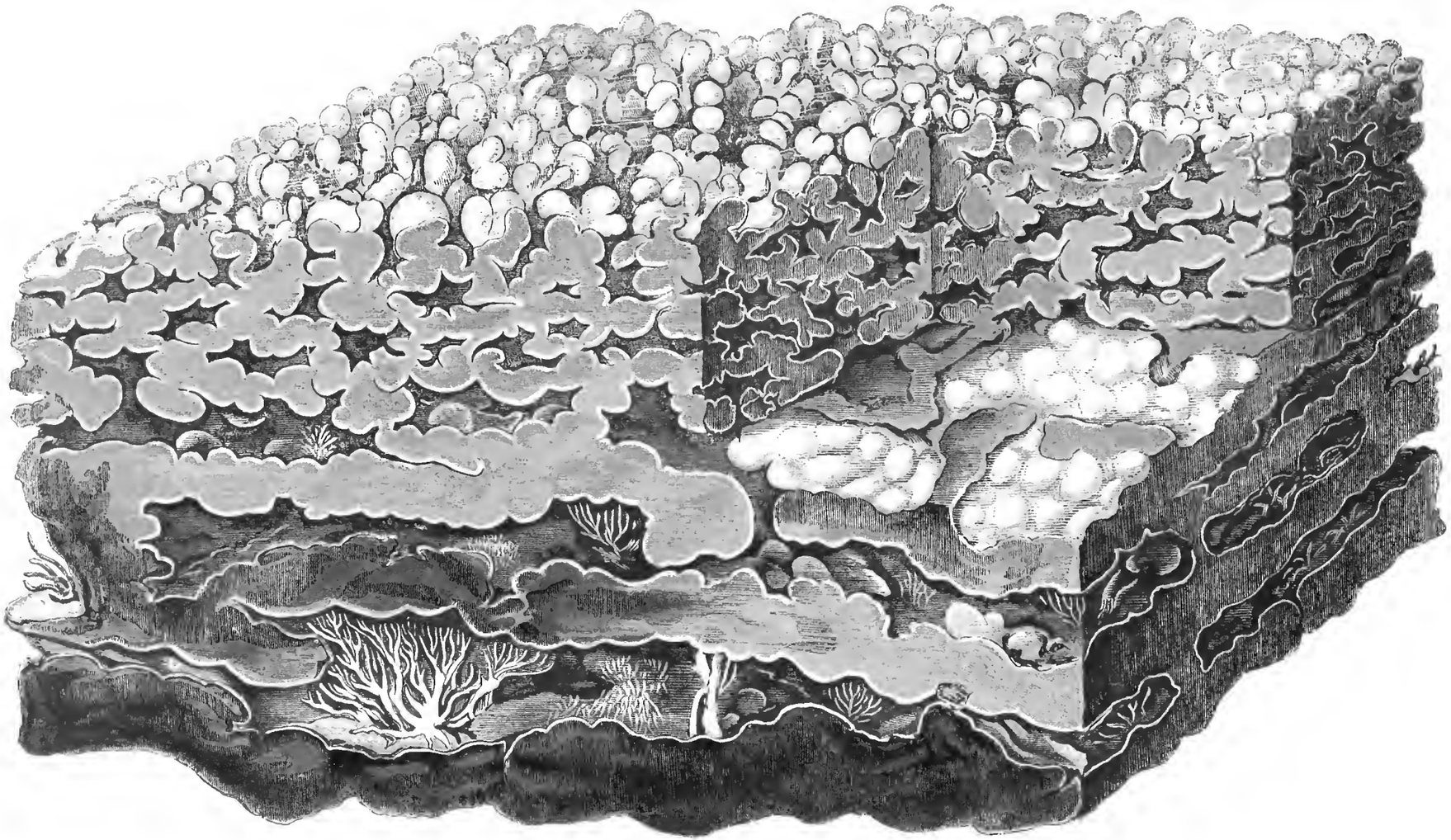



E. R. Lankester, del. Nat. fec.

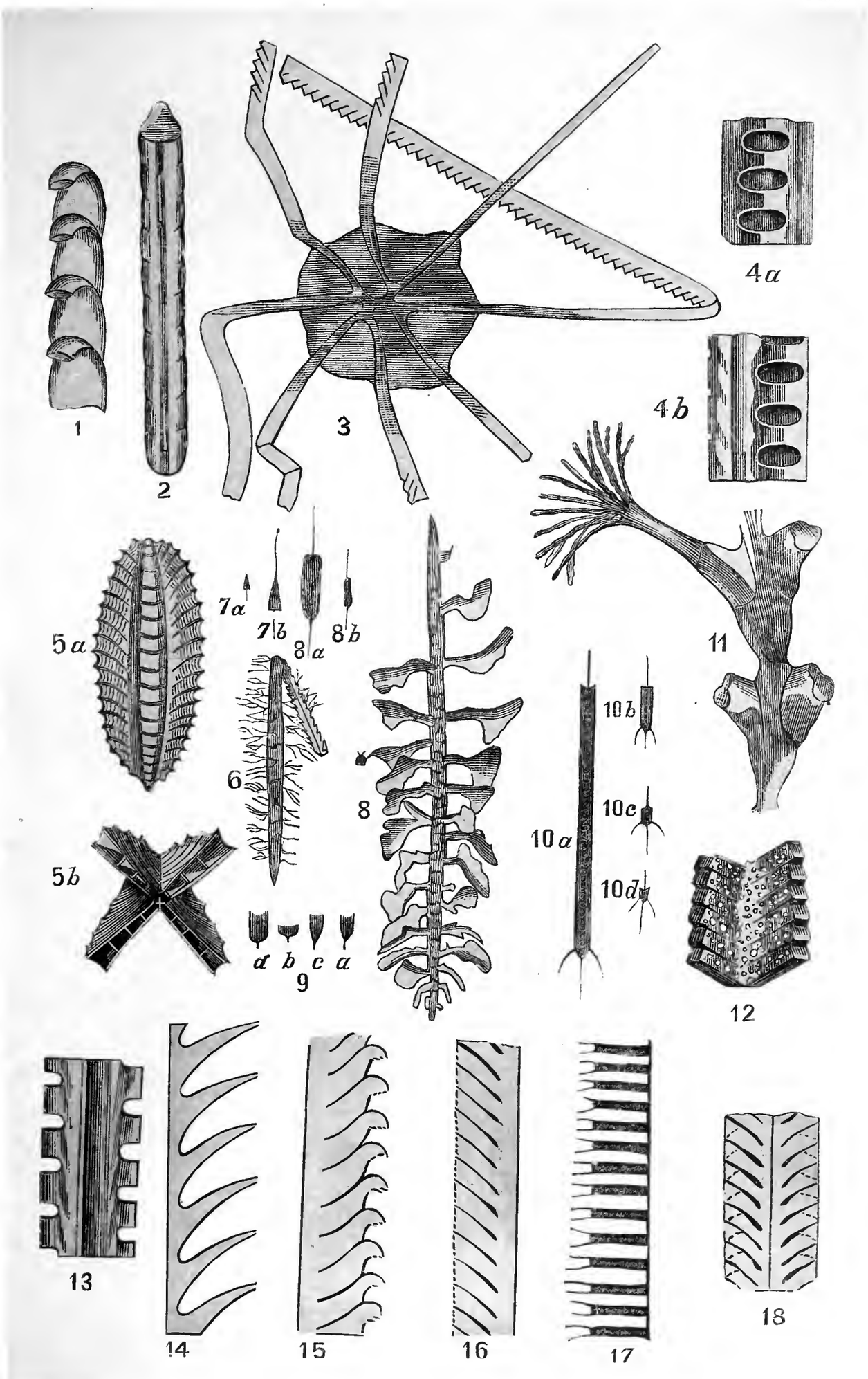
PARASITES OF THE CRYPTOBRANCH



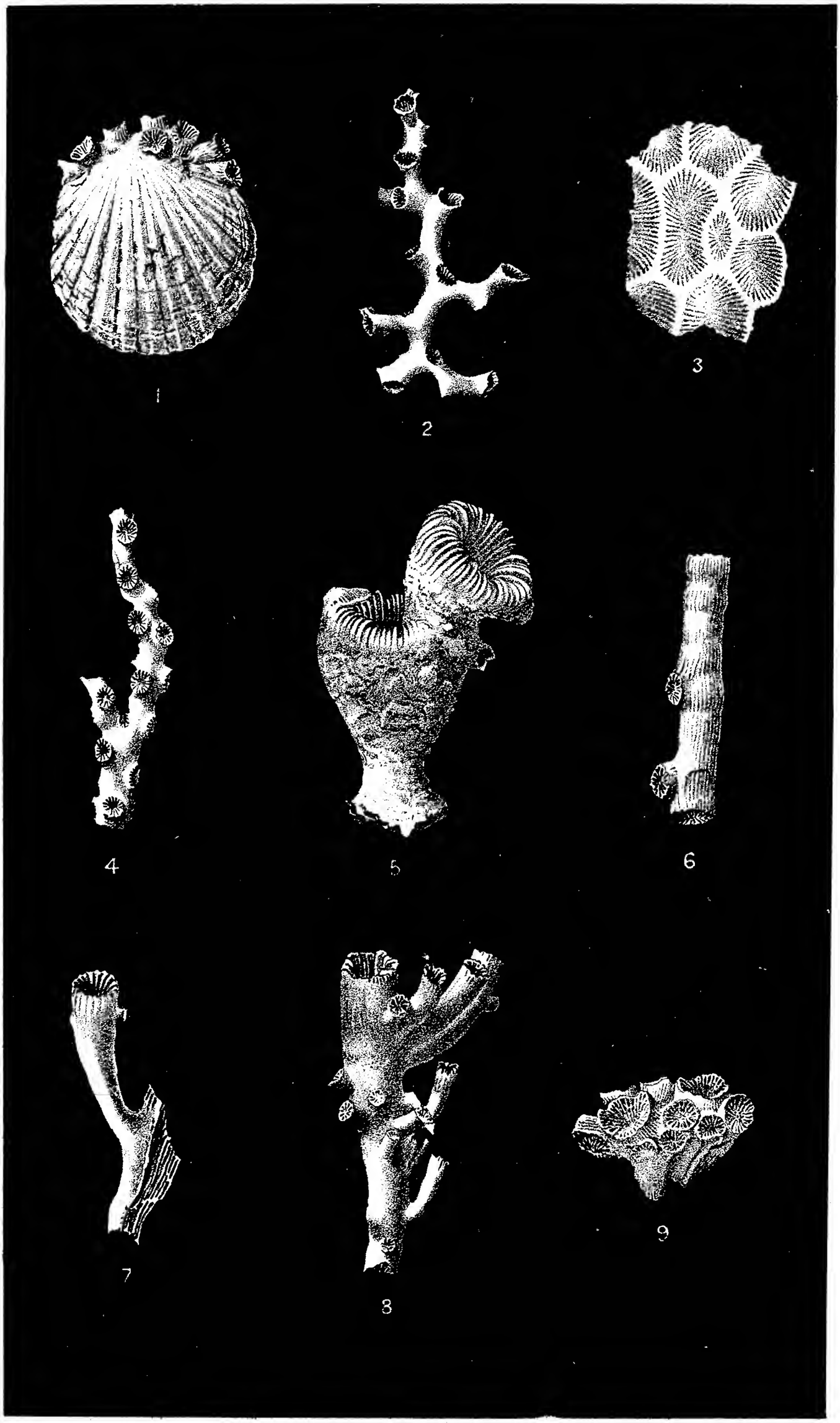

Ophrydium versatile.



Porites Canadense.

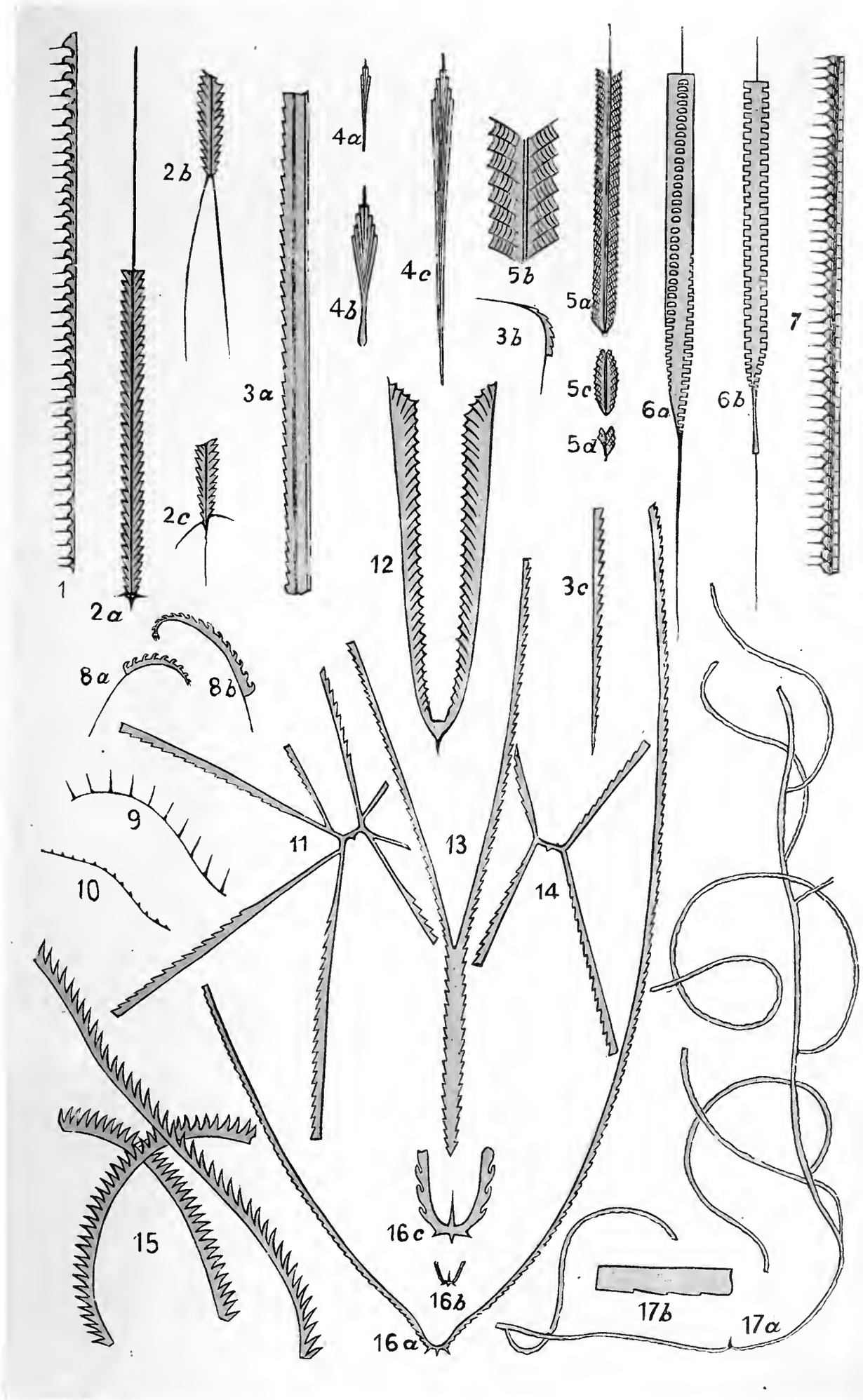



STRUCTURE OF GRAPTOLITES.

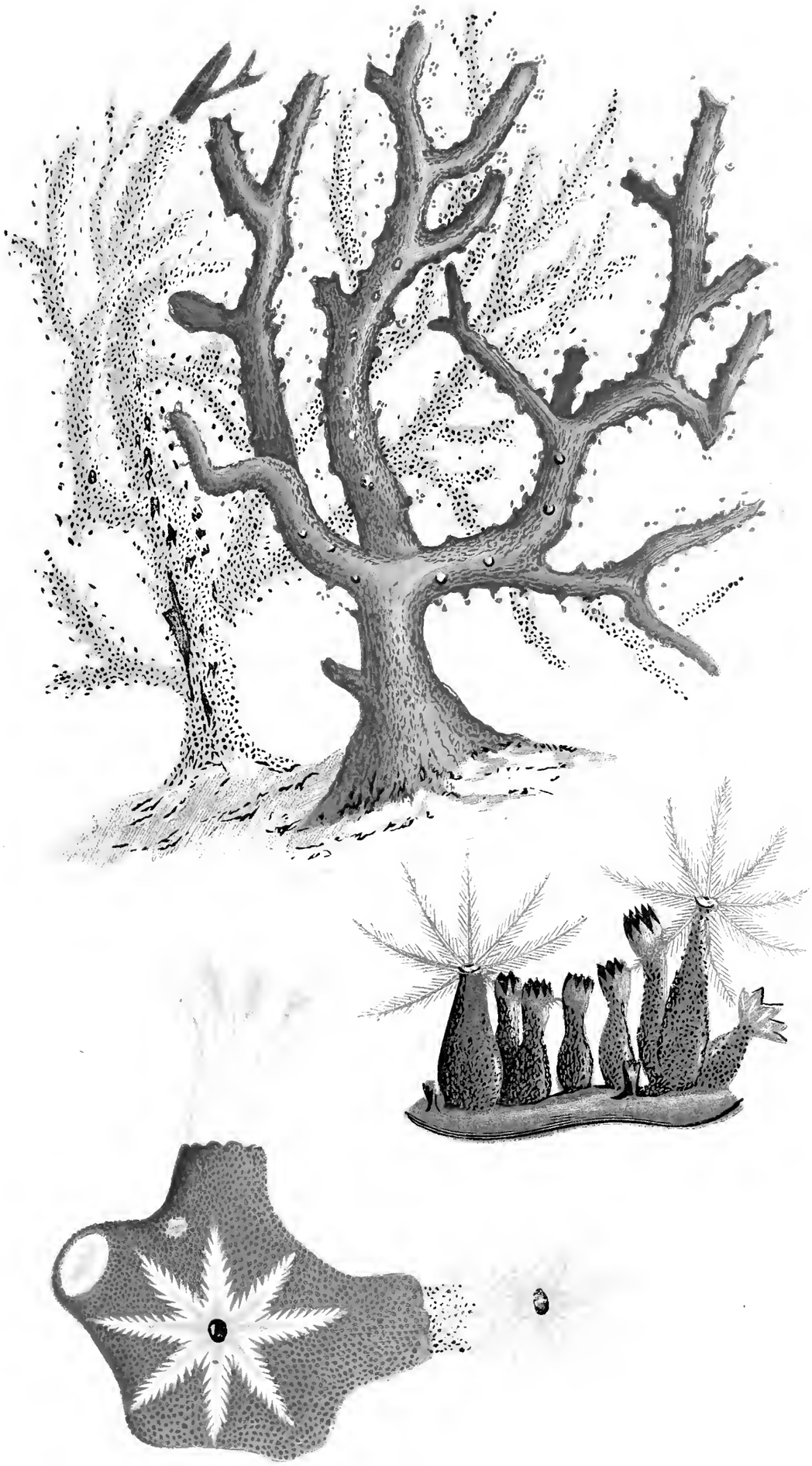



F Bacon & Co London

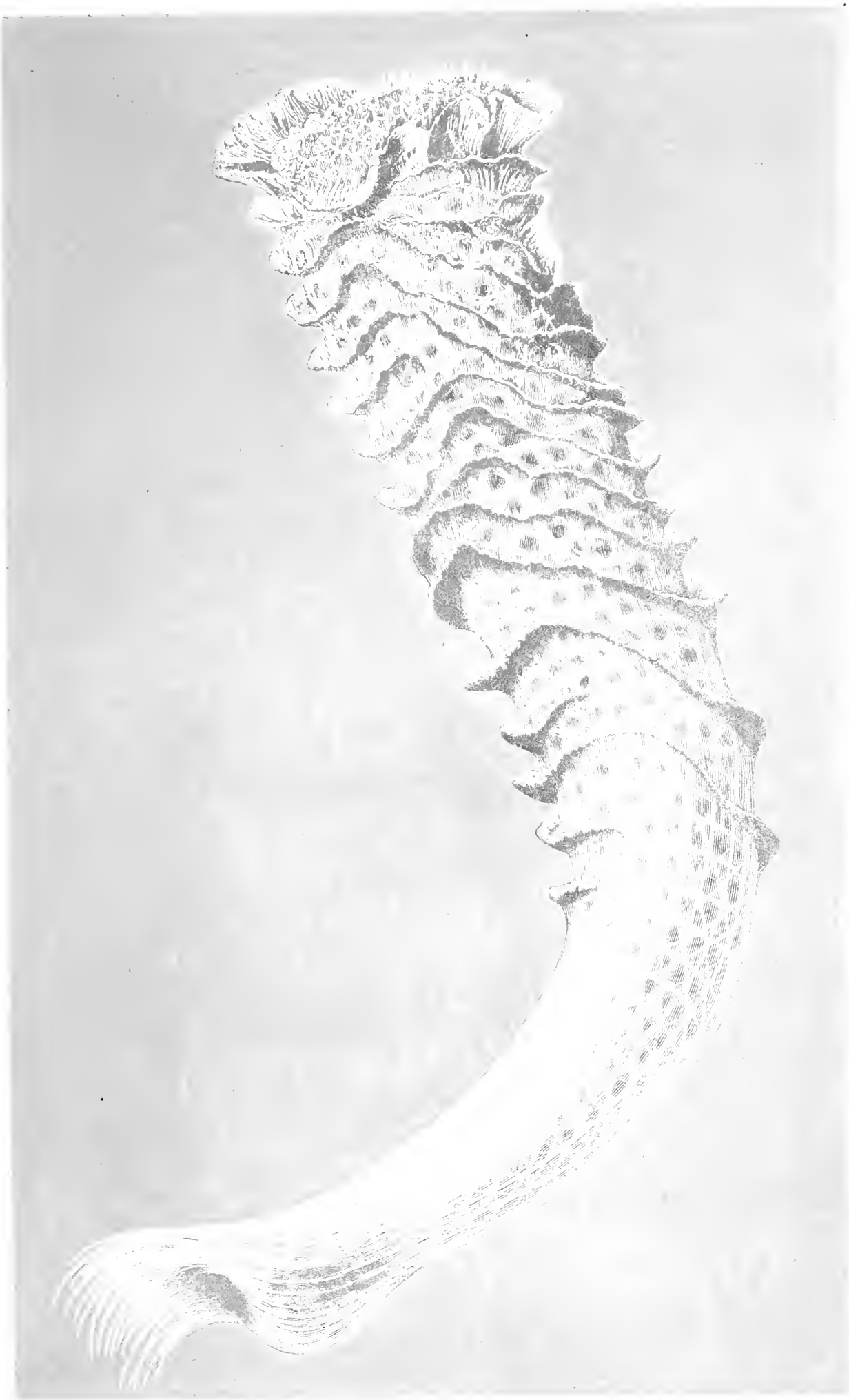
CORALS.




BRITISH GRAPTOLITES.

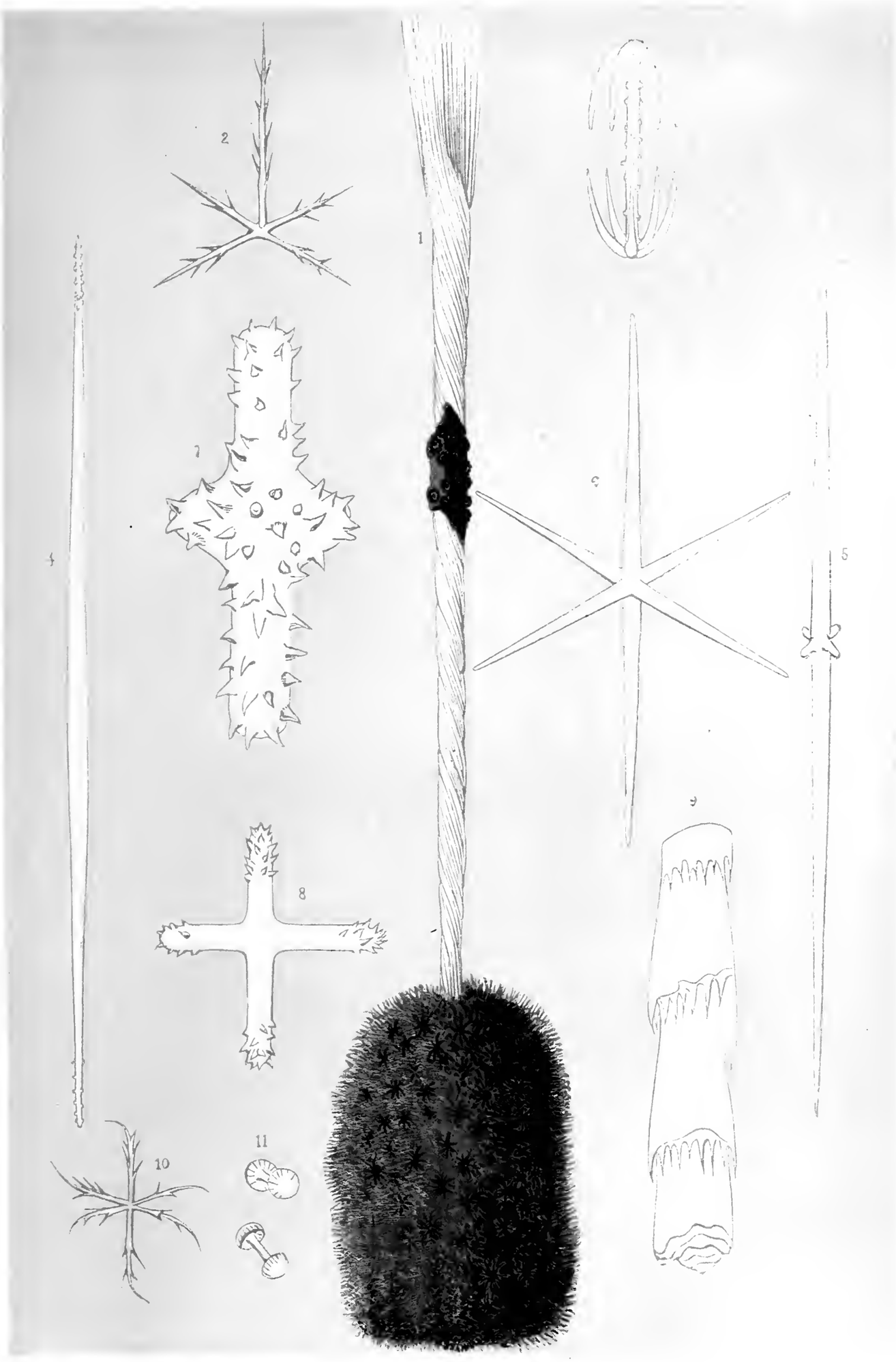


ALCYONARIA.



SPONGE

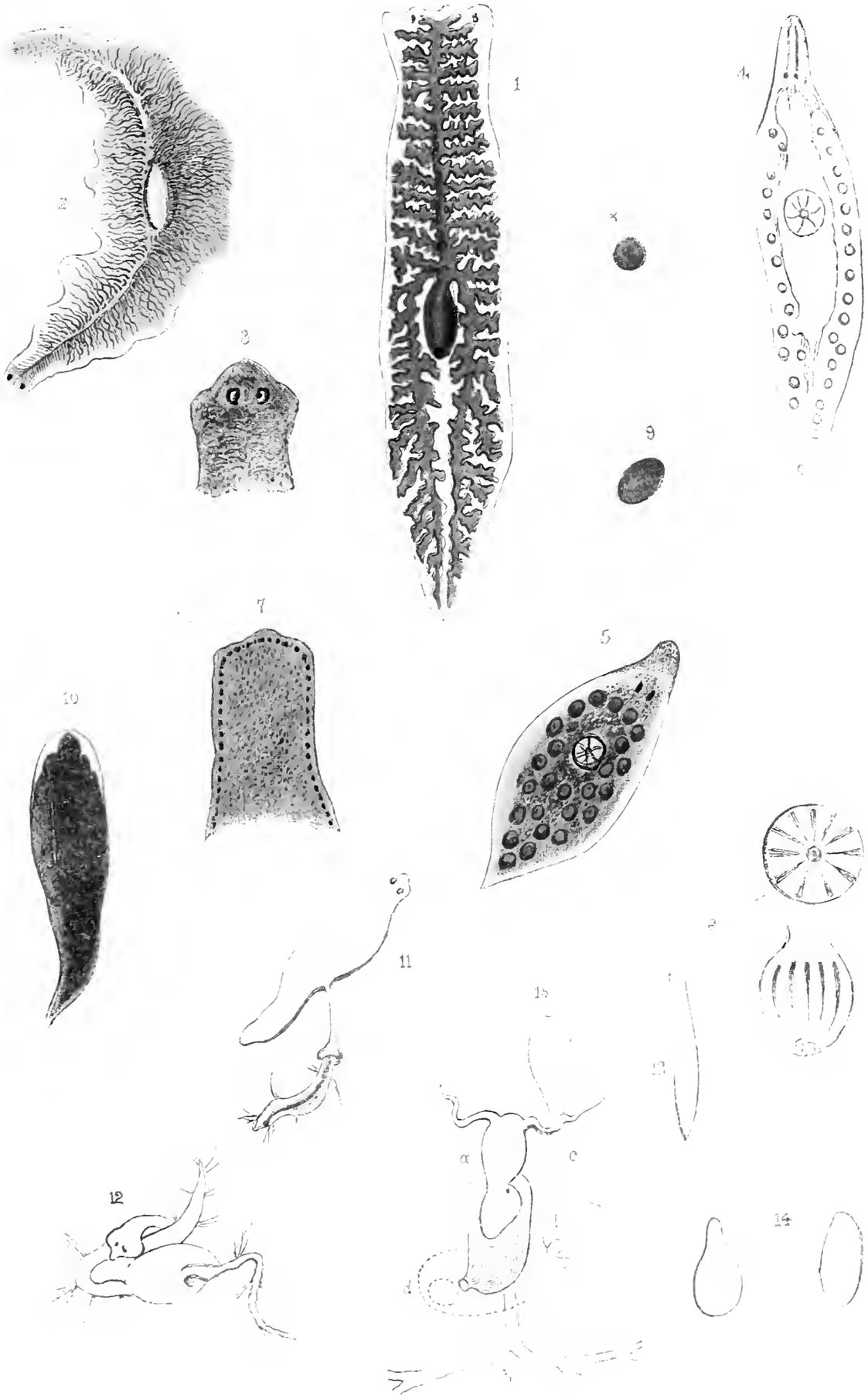
Euplectella speciosa



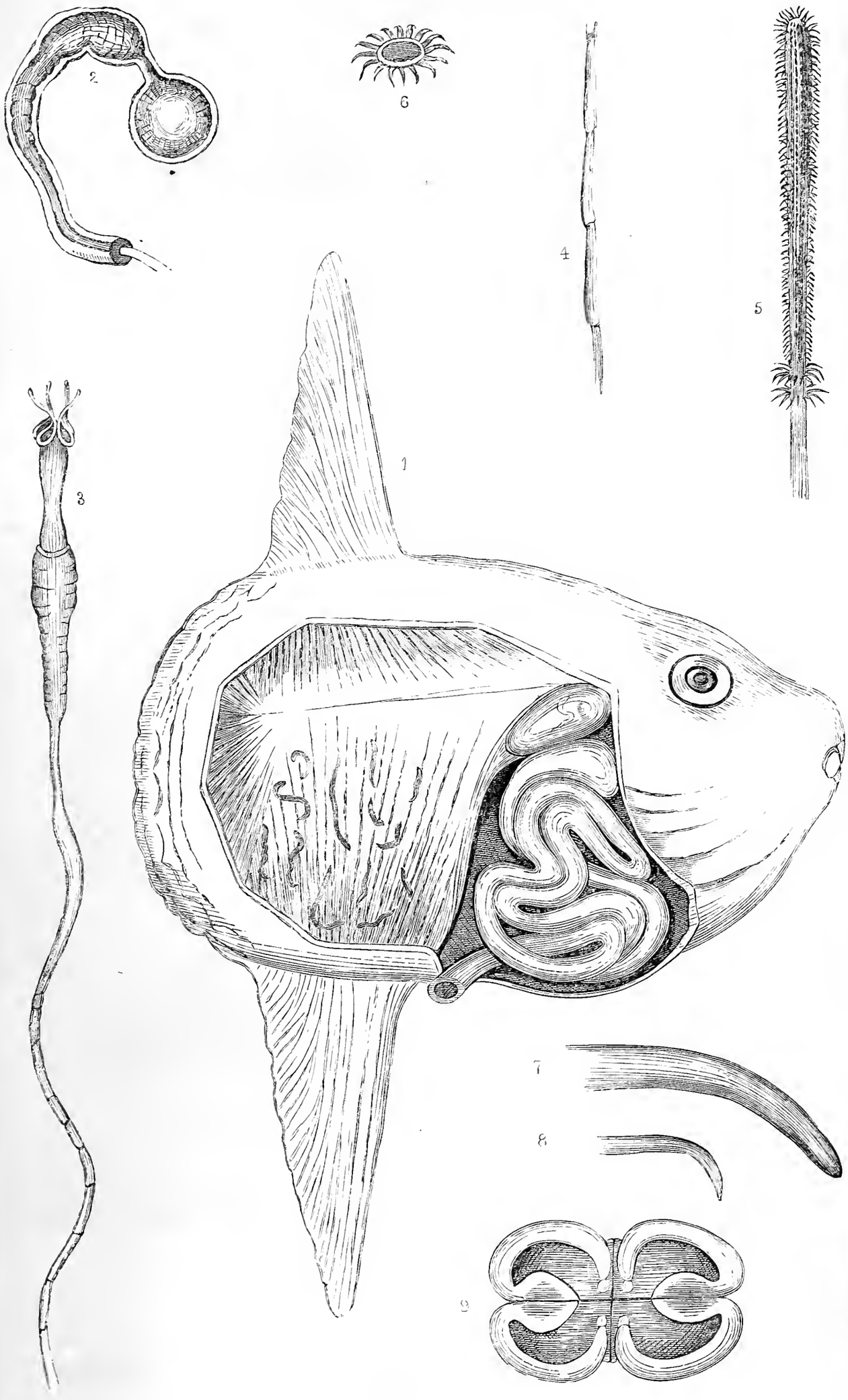

HYALONEMA SIEBOLDI.

Fig. 1, One-third natural size.
Figs. 5, 10, 11, magnified 200-300 diameters.

Figs. 2, 3, 4, 8, about 150 diameters.
Figs. 6, 7, 9, about 75 diameters.




FRESH-WATER PLANARIÆ.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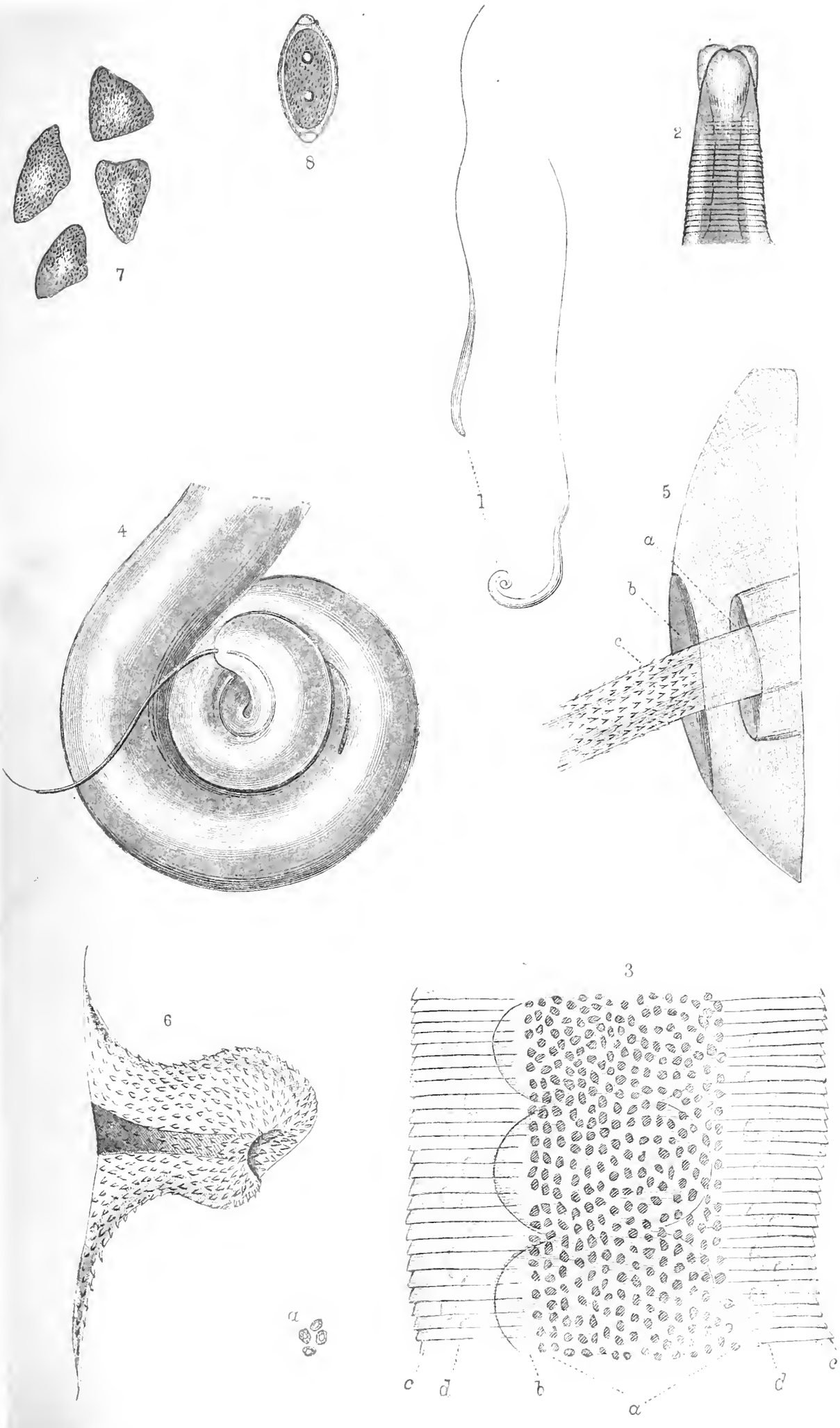
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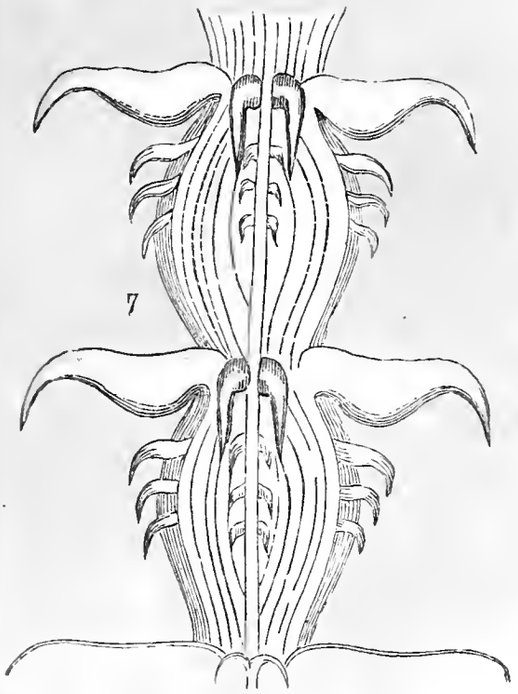
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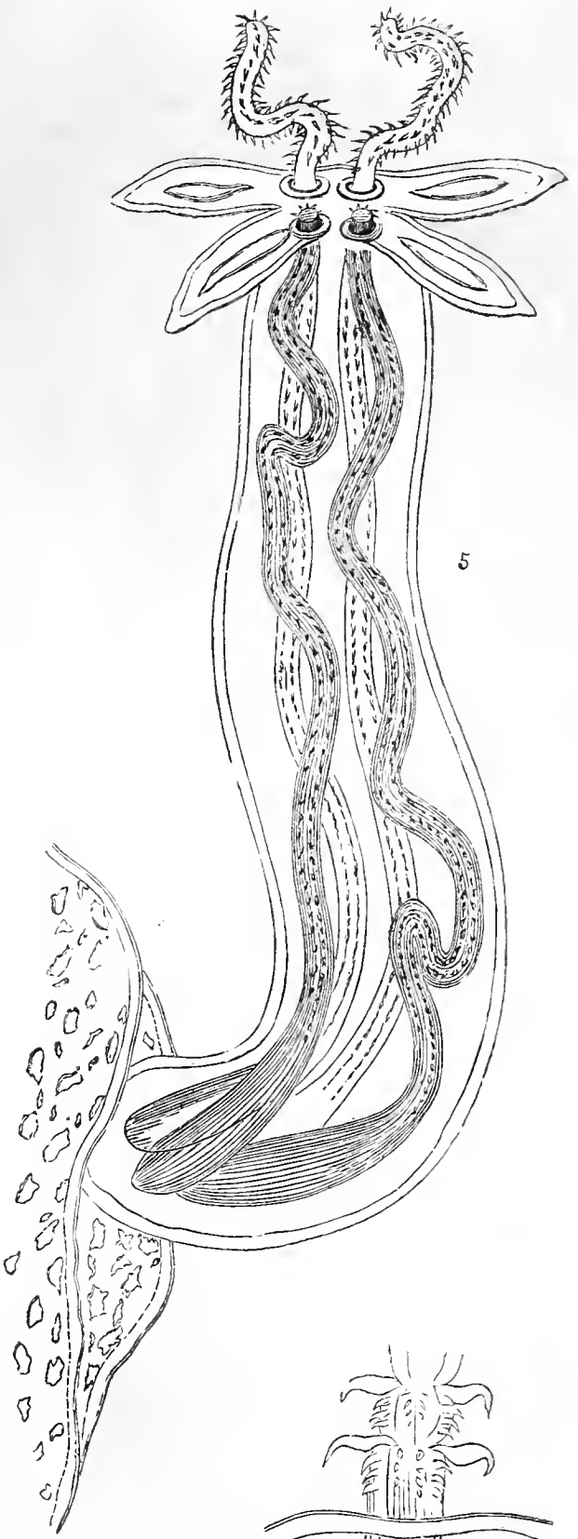
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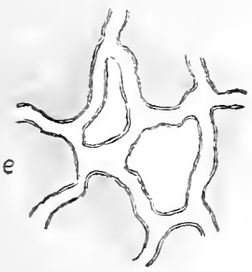
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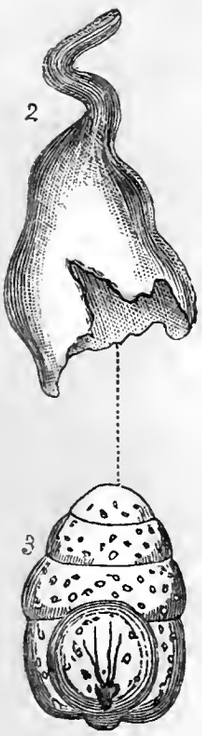
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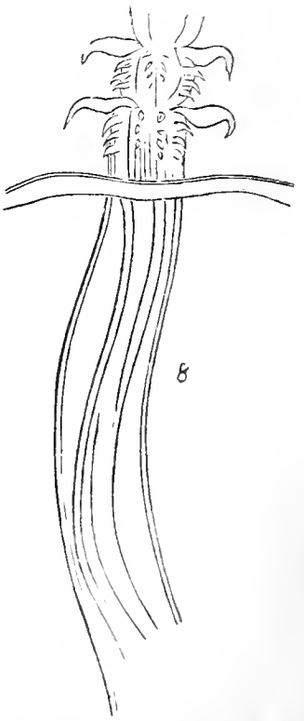
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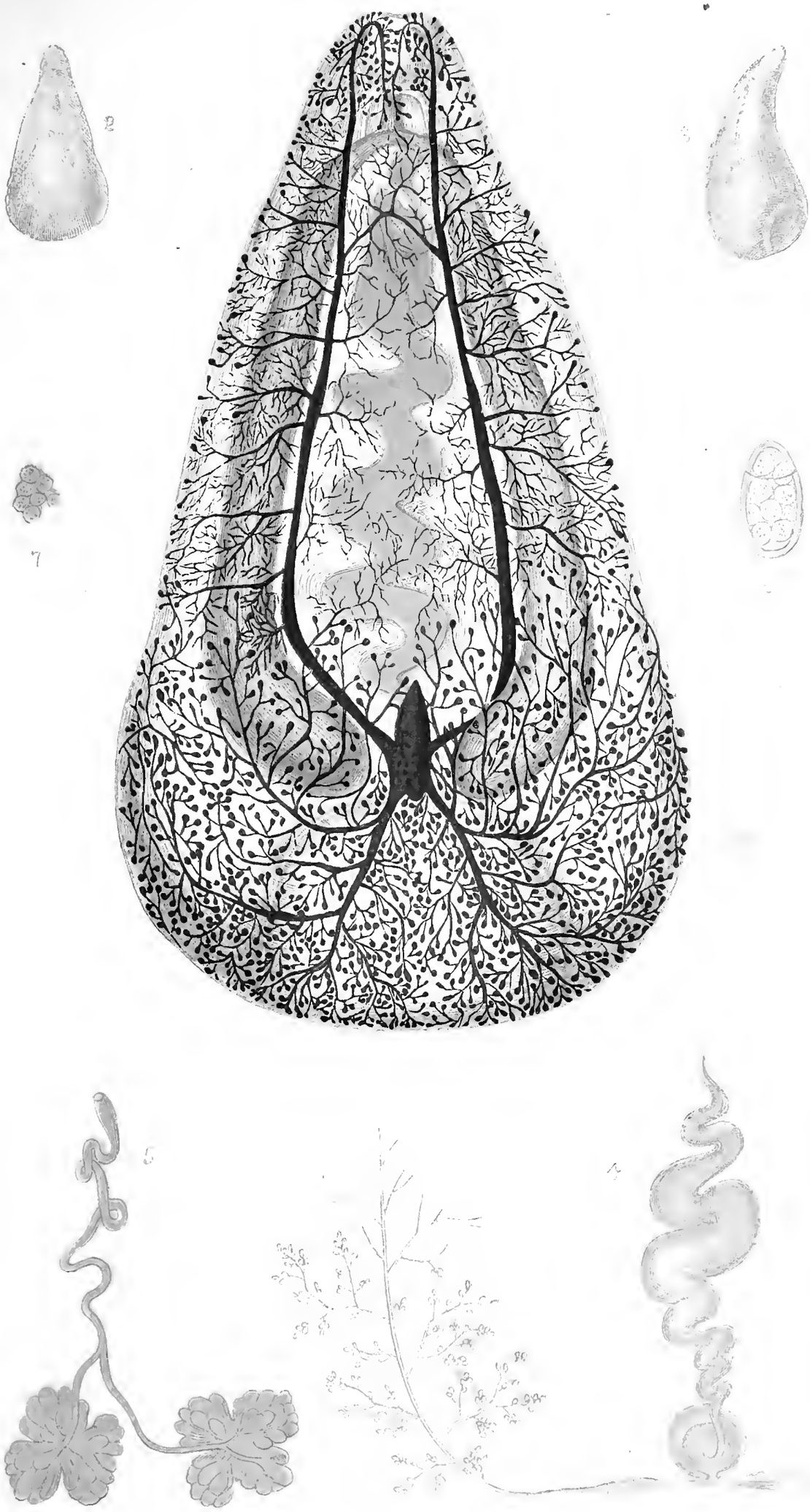
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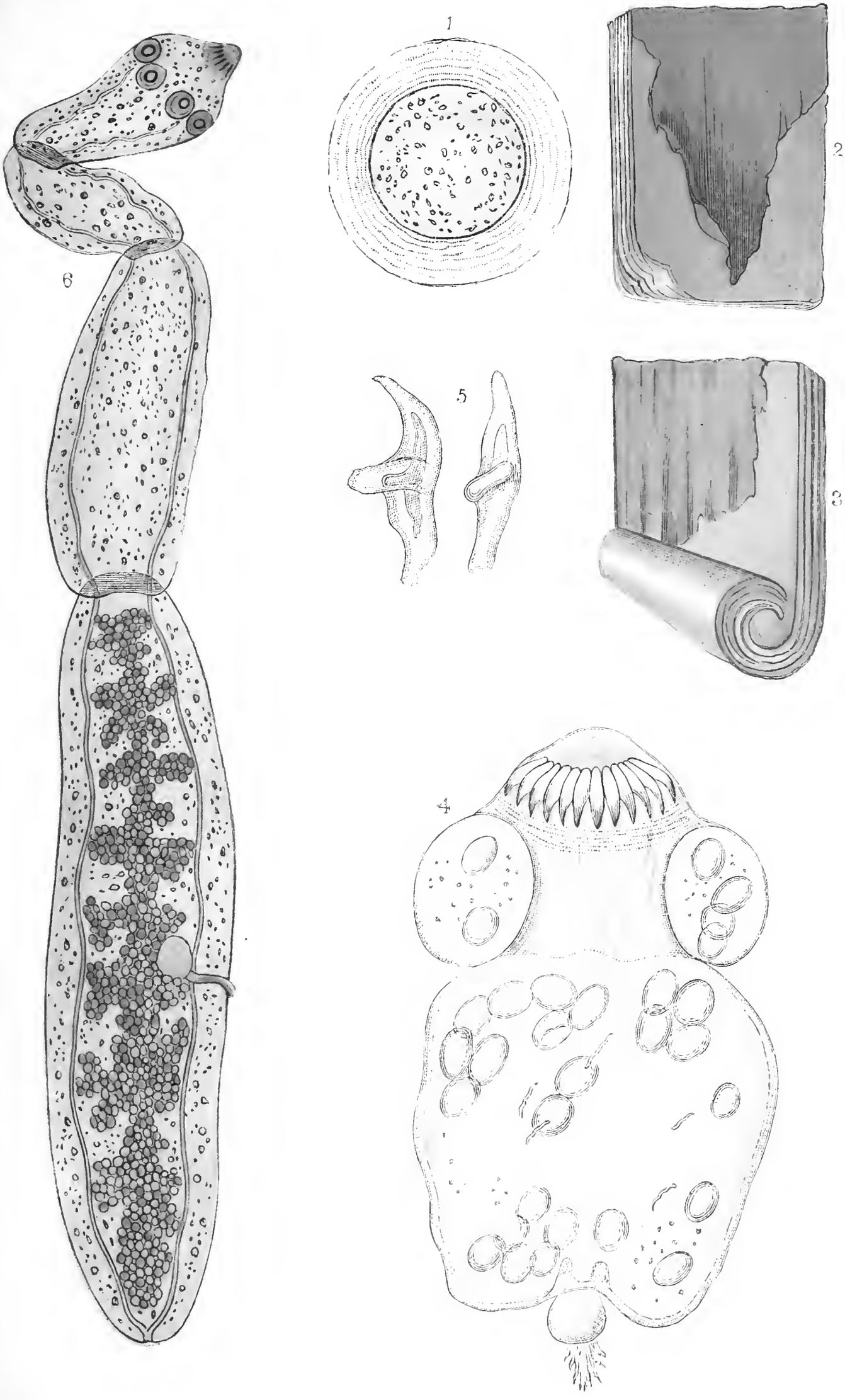
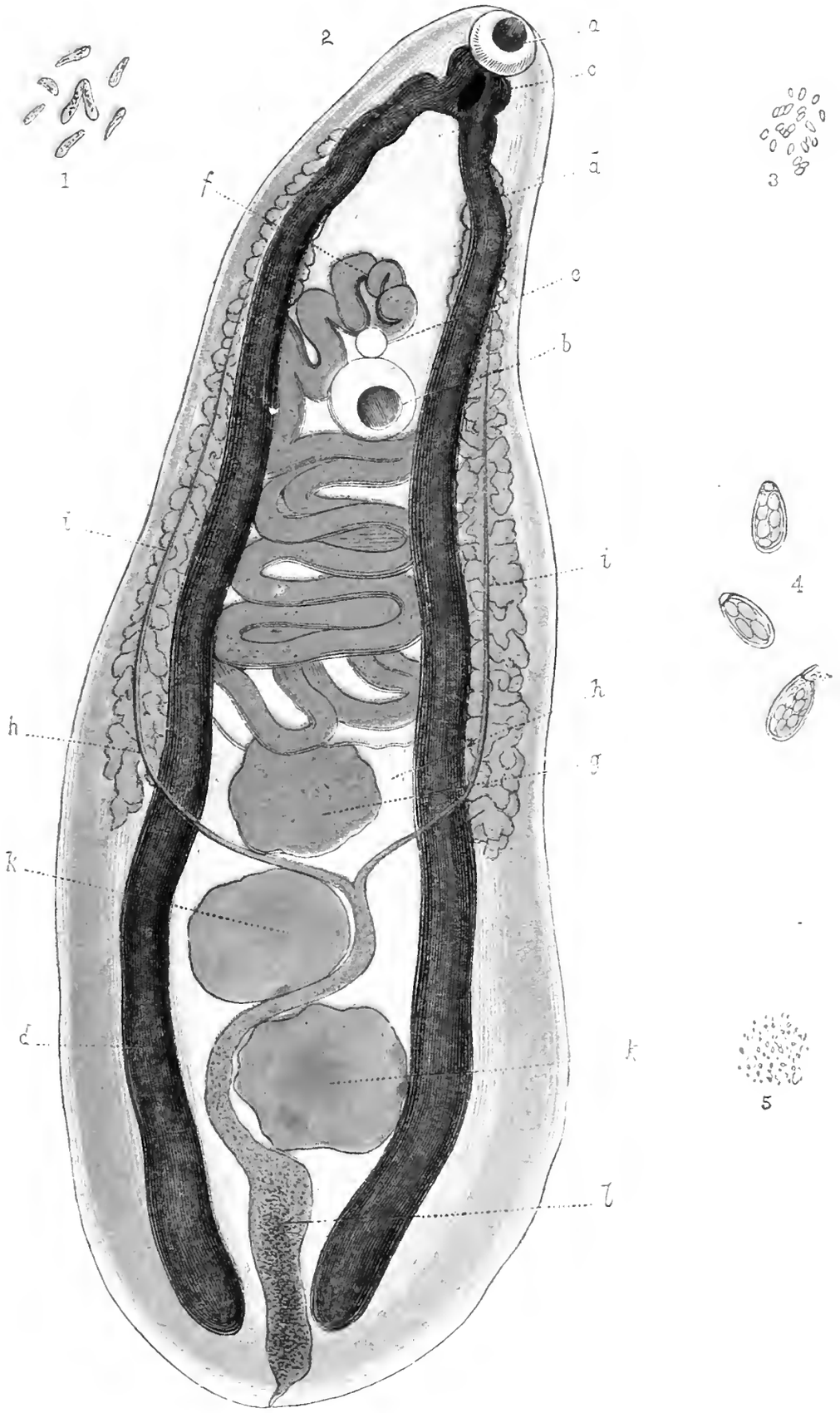
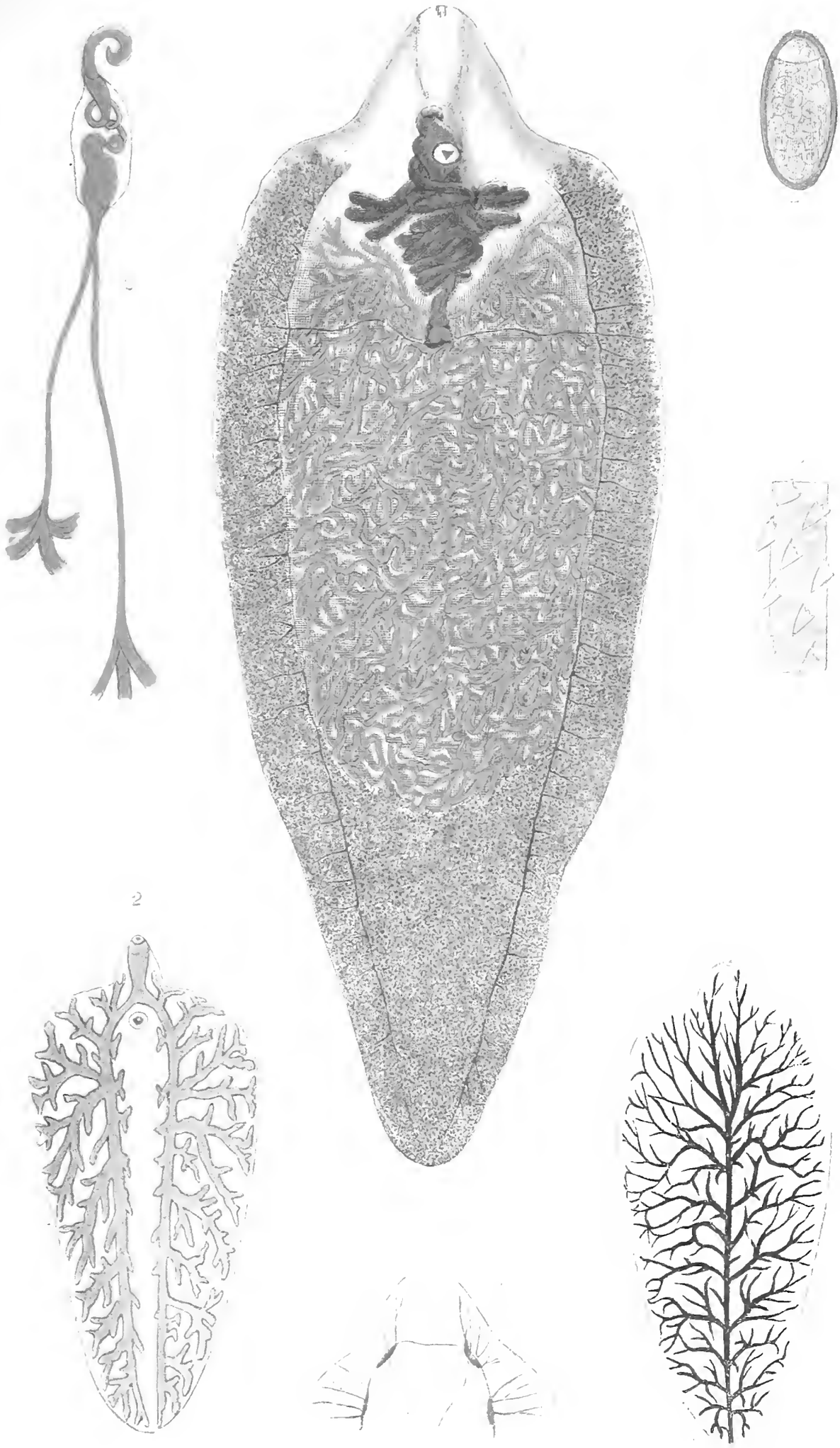



Tænia echinococcus.

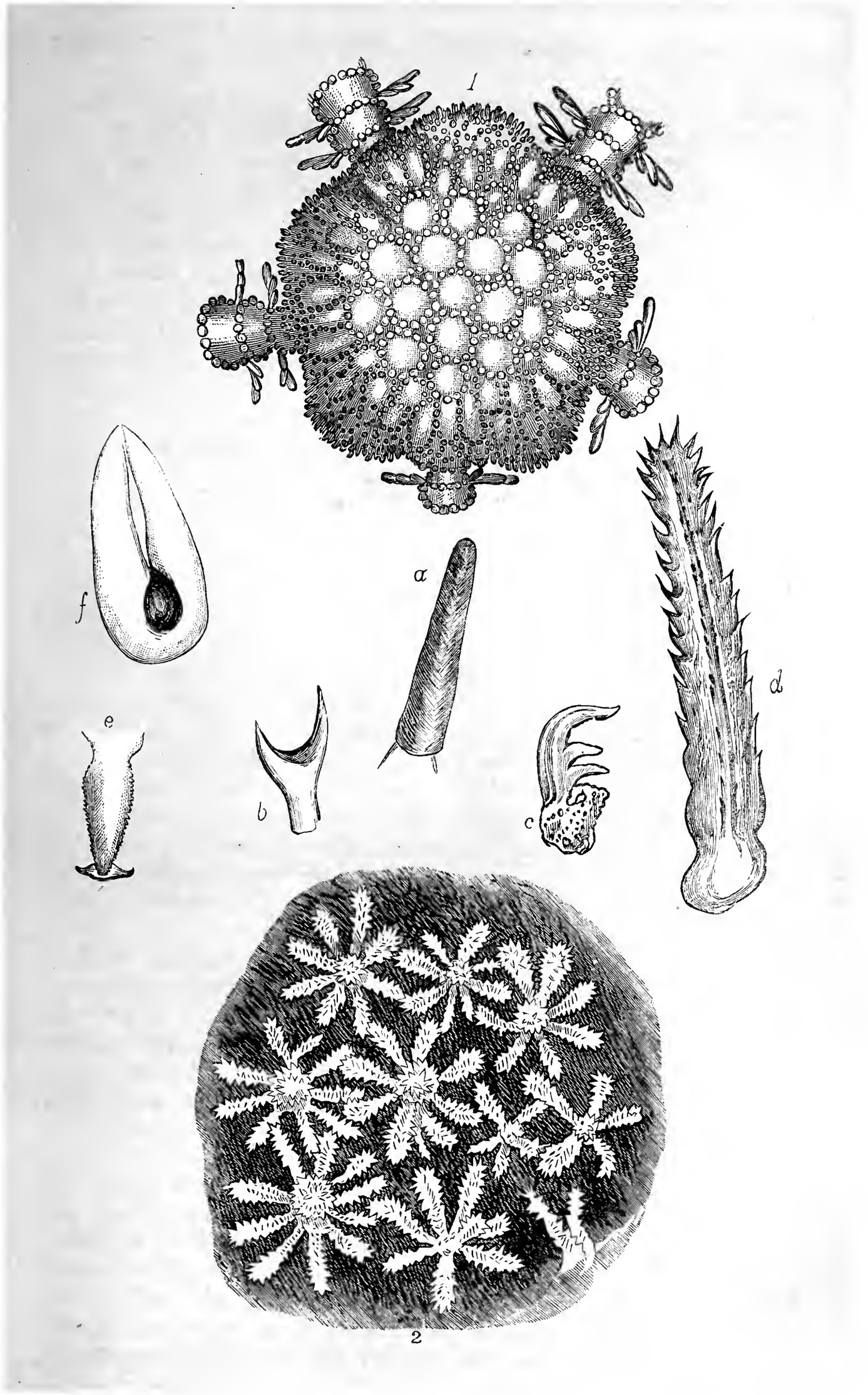



T. S. Cobbold, del.

Distoma conjunctum.

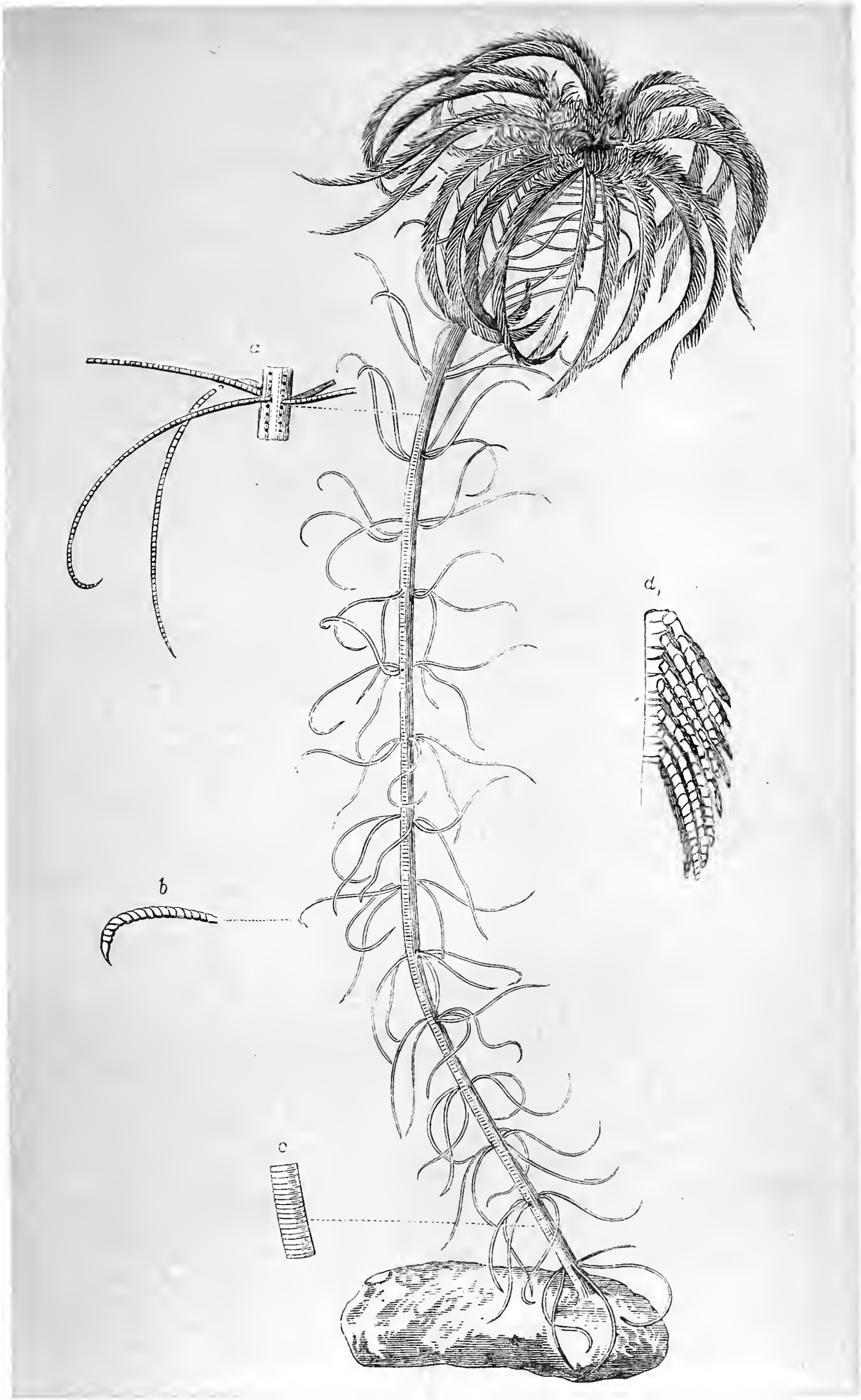



Fasciola hepatica



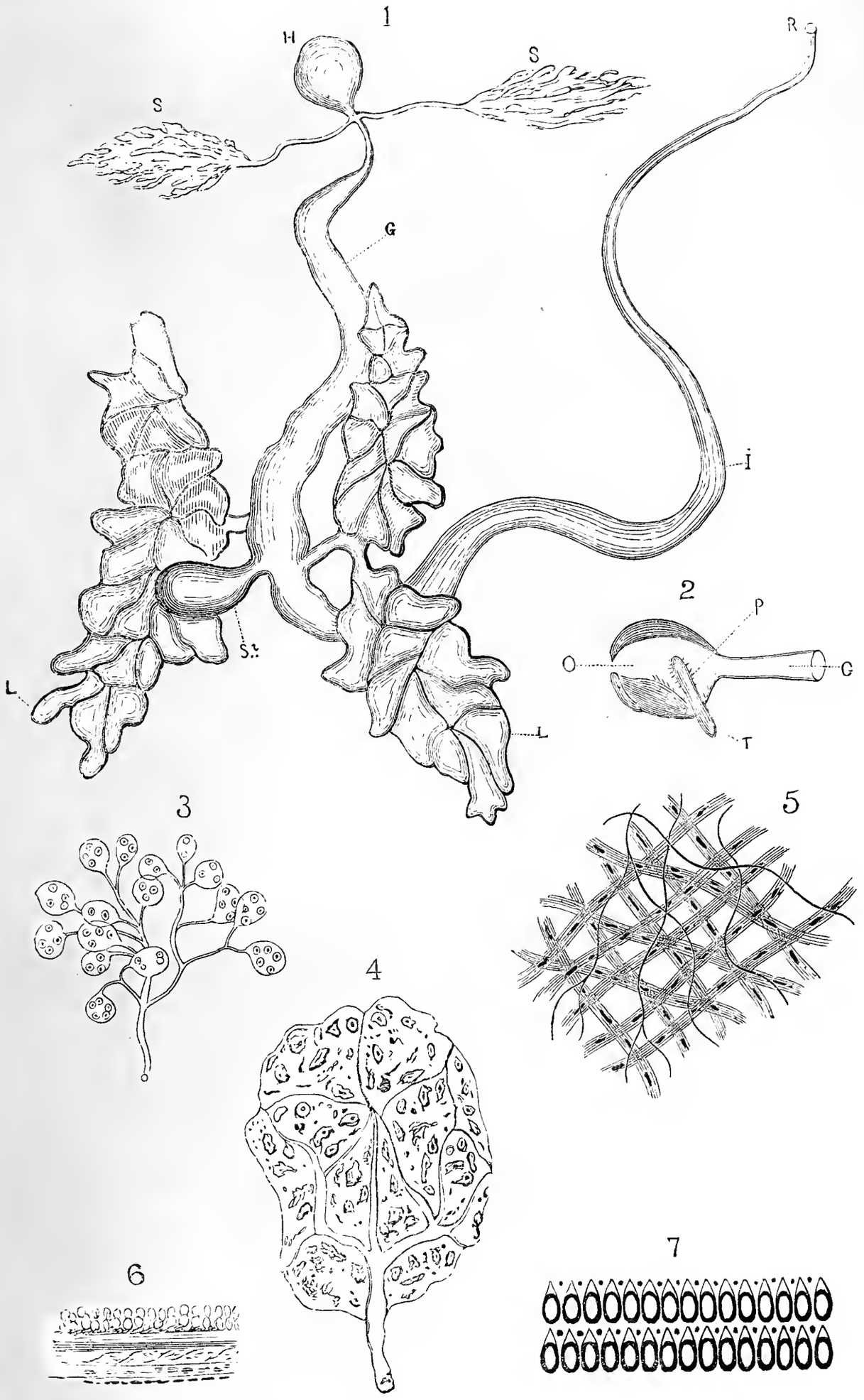

1. Disk of Ophiocoma bellis (magnified.)

2. Part of ray of Luidia fragilissima (magnified.)



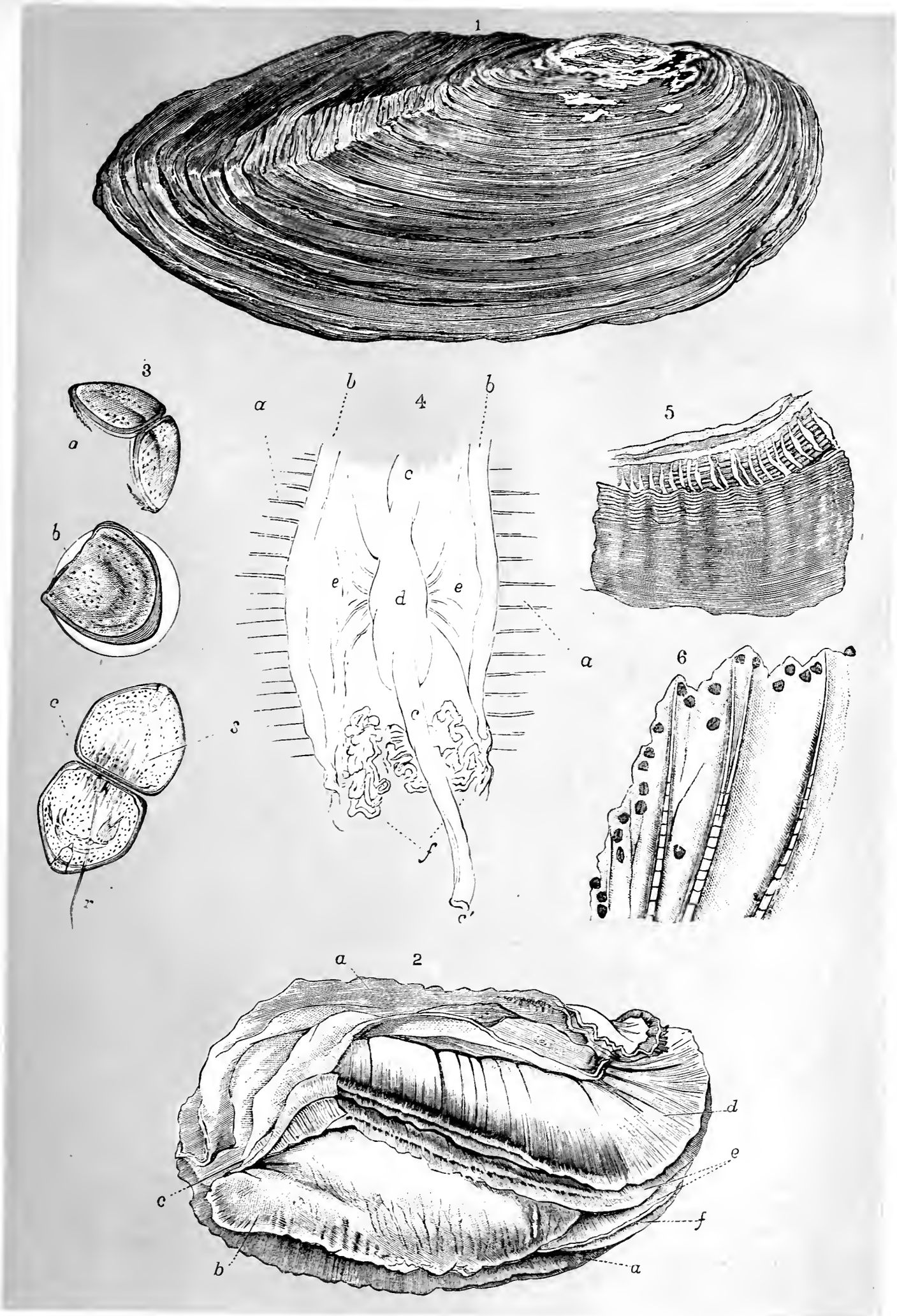

Pentacrinus Caput-Medusæ. Mill. One-third natural size
St. Lucia. West Indies.

Drawn by Mr. J. Dinkel from a specimen in the British Museum.




H. L. ad nat. delt.

Digestive System of the Great Slug.




THE SWAN MUSSEL. (Anodonta cygnea.)

Fig. 1. Shell of Anodonta cygnea.

Fig. 2. Animal of ditto. a, Mantle. a', ditto, folded back. b, Foot. c, Labral palpi, inner surface. d, Outer gill distended with embryos. e, Inner gills. f, Outer gill.

Fig. 3. Embryos. a, Shewing open valves and serrated hooks. b, Closed valves surrounded by chorion. c, Open valves, shewing adductor muscles (s) and origin of byssus filament (r).

Fig. 4. Shewing heart, etc. a, Gills. b, Branchial arteries. c c, Rectum passing through ventricle of heart (d). e e, Auricles. c', Anus. f, Portion of organ of Bojanus.

Fig. 5. Portion of outer gill, shewing septa or divisions for reception of eggs, etc.

Fig. 6. Portion of fin of fish, with parasitic embryos.

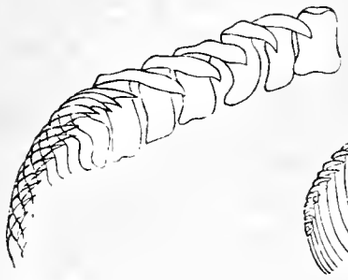
Patella vulgata.

P. pellucida.

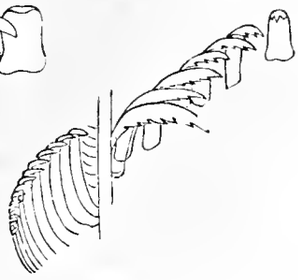
Acmœa virginea.

A. testudinalis.

Trochus ziziphinus.



T. granulatus.



T. helicinus.

T. cinerarius.

Neritina fluviatilis.

Cyclostoma elegans.

Paludina listeri.

Bithynia tentaculata.

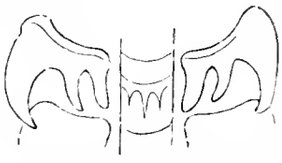
Litorina litorea.

Litorina litoralis.

Lamellaria tentaculata.

Purpura lapillus.

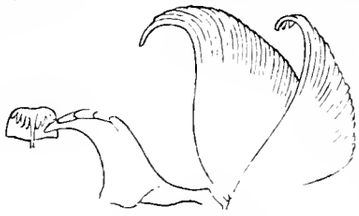
Nassa incrassata.



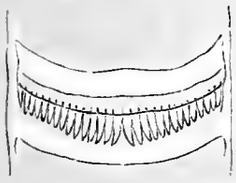
Fusus islandicus.

Natica monilifera.

Cypræa Europæa.



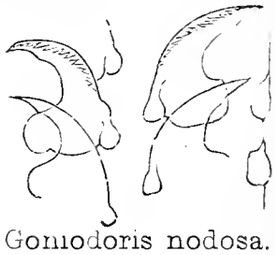
Ovula patula.



Eolis papillosa.

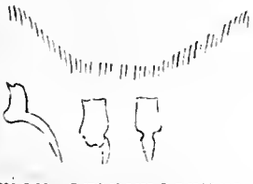
E. (coronata.?)

Doris aspera.

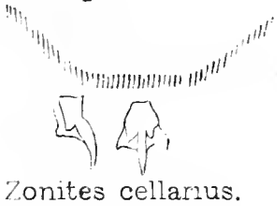


Goniodoris nodosa.

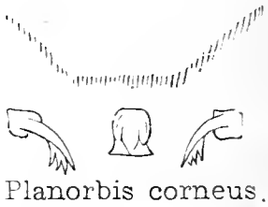
Physa fontinalis.



Arion empiricorum.

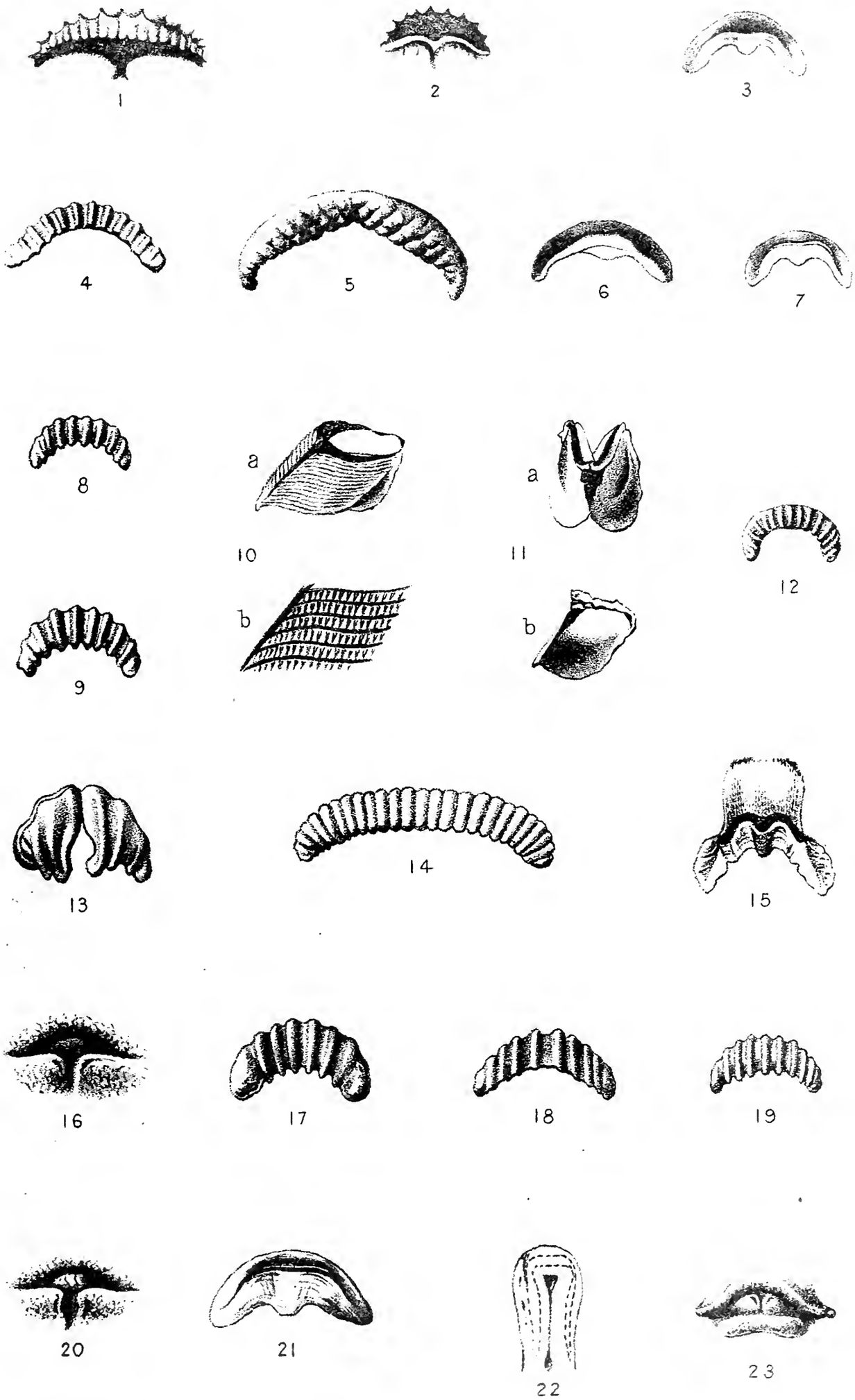


Zonites cellarius.

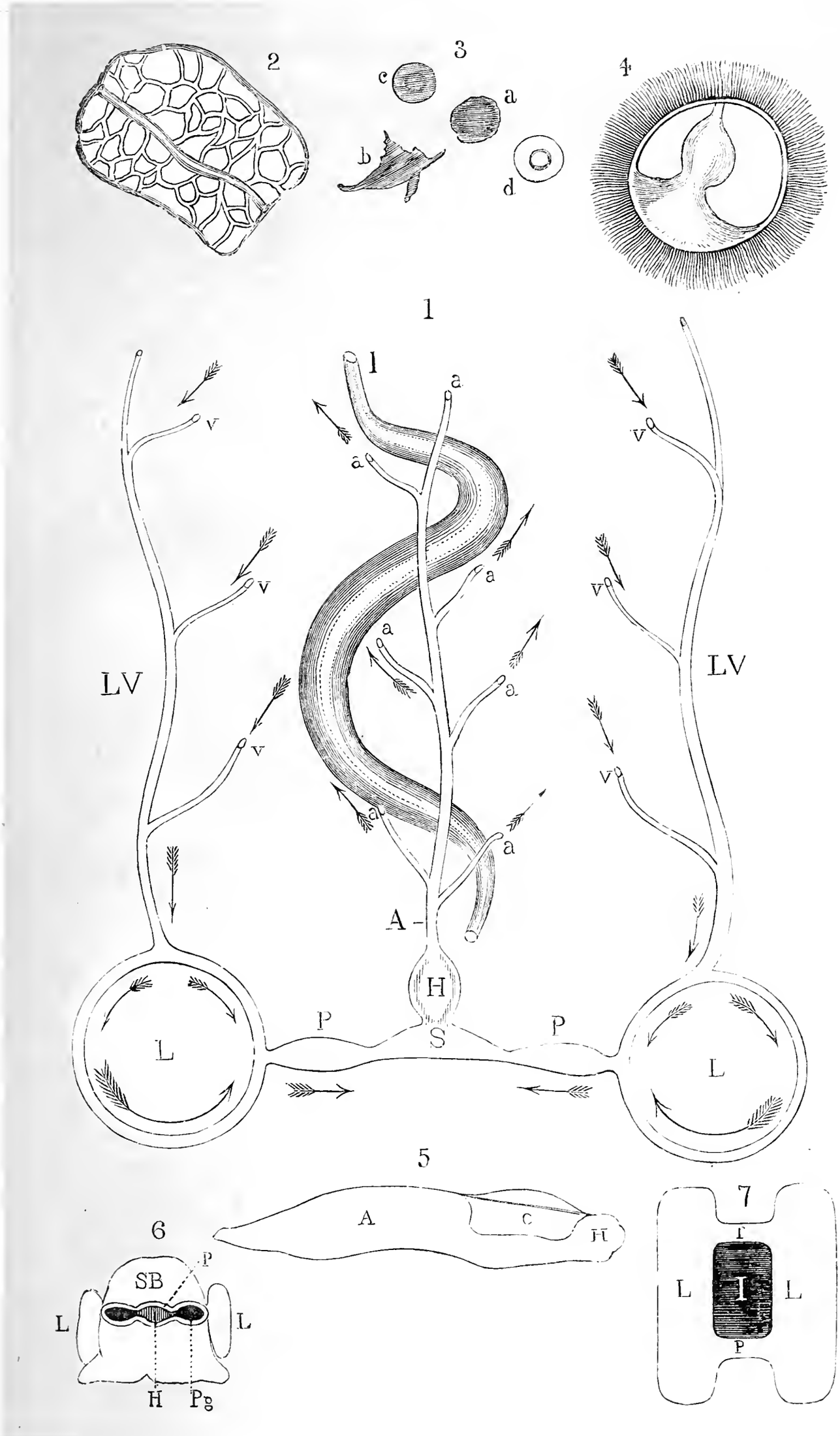


Planorbis corneus.

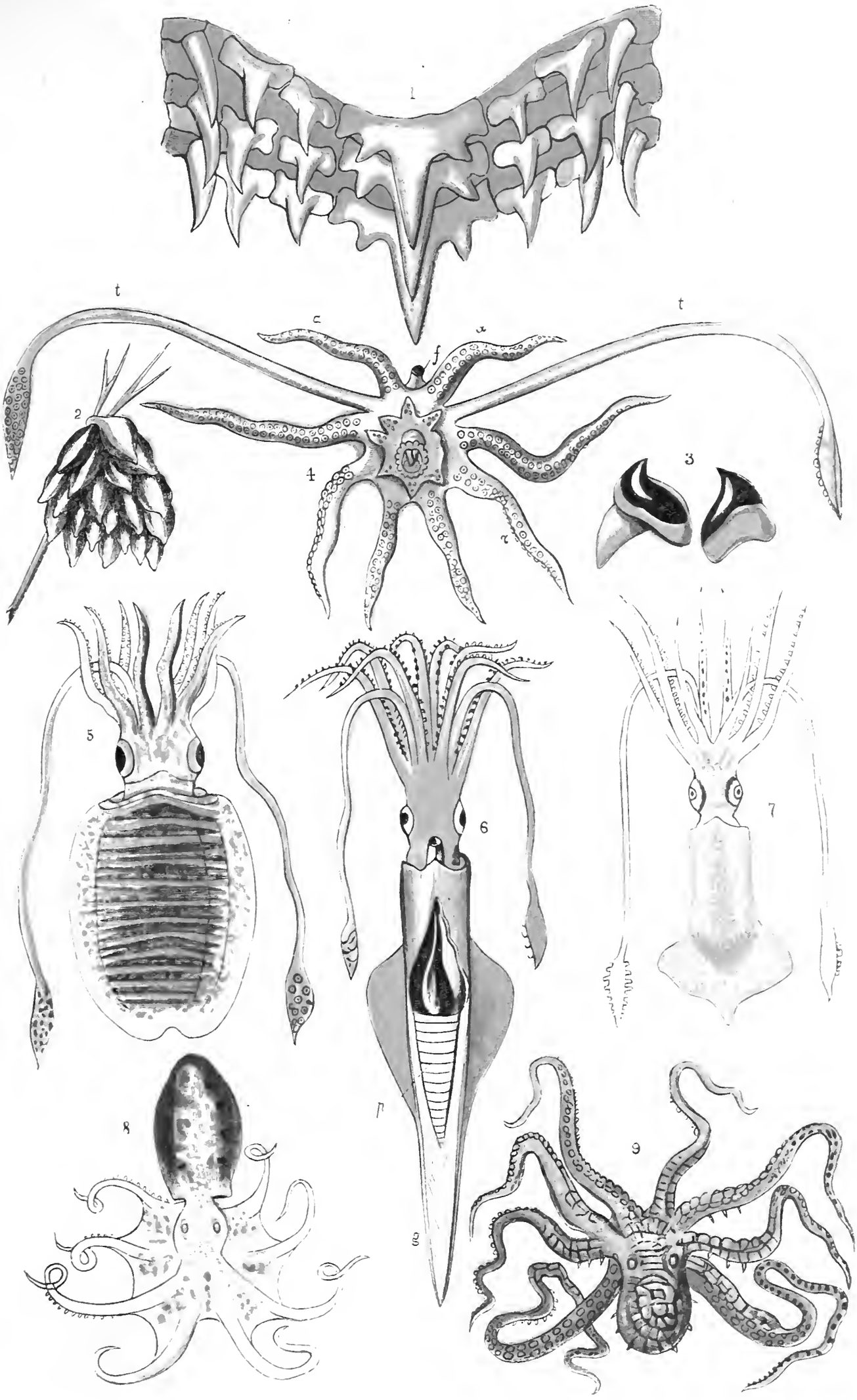
PALATES OF MOLLUSCA.



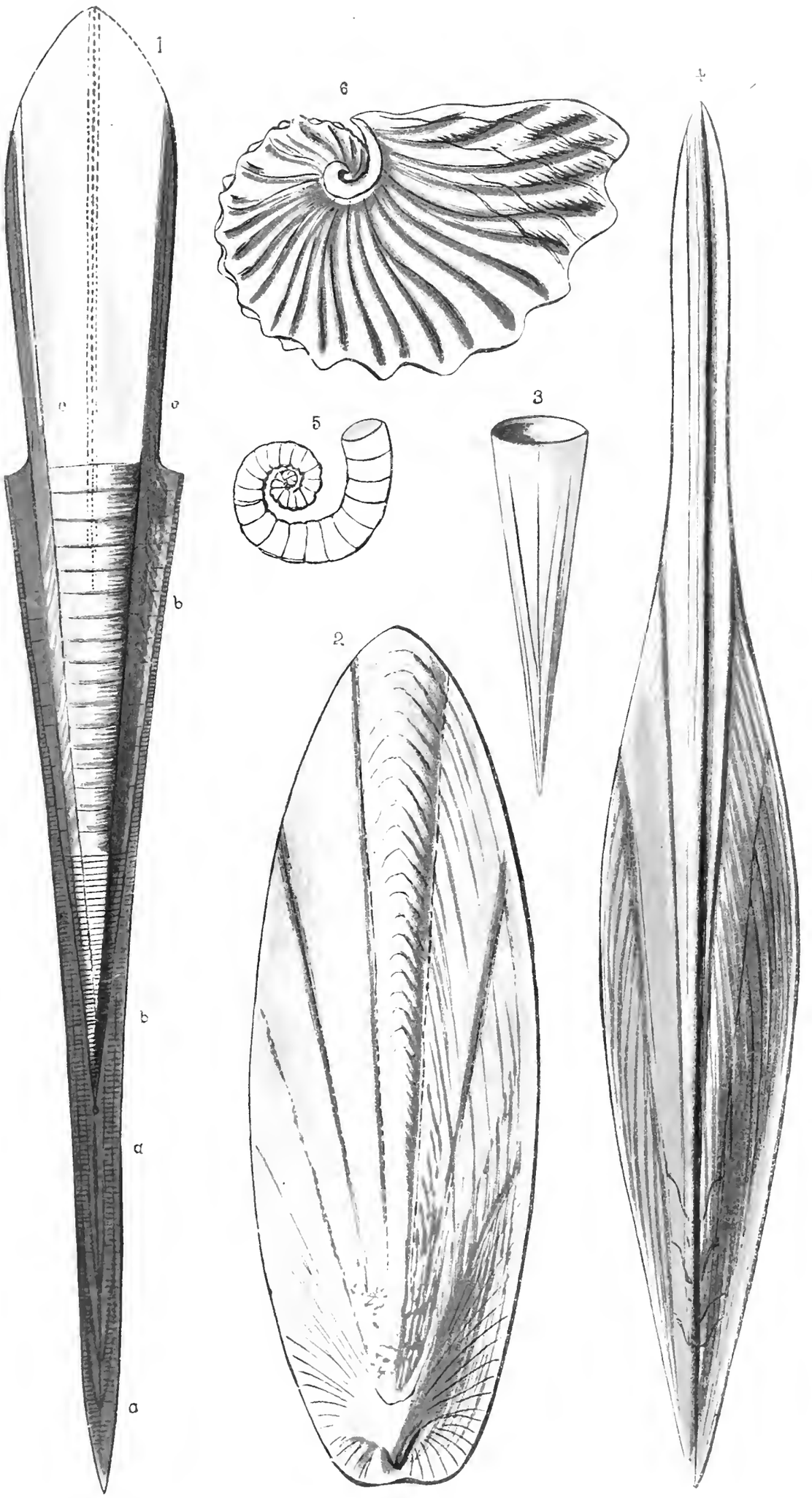

MANDIBLES OF GASTEROPODA.




Circulation and Respiration of Slug.



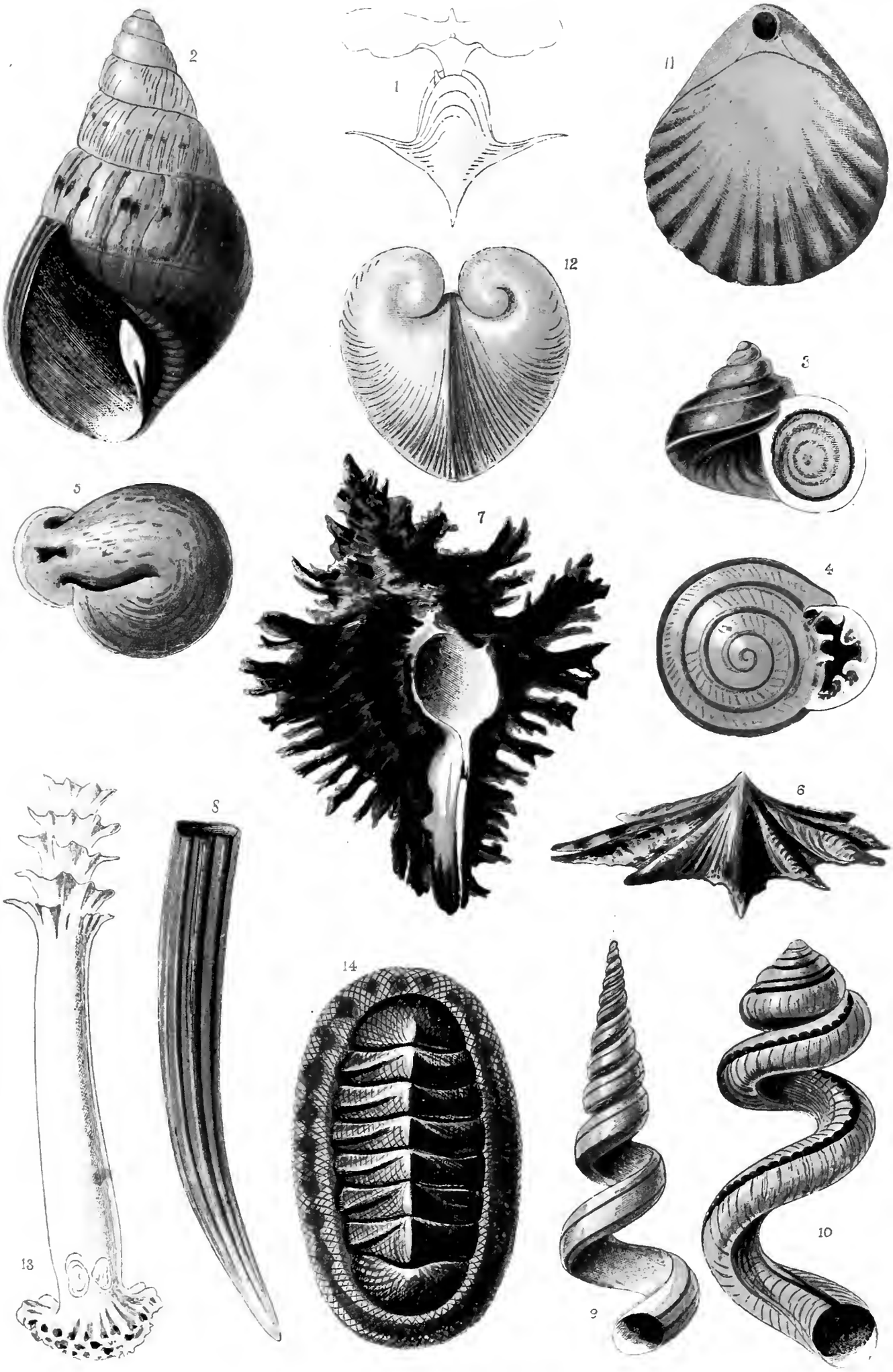

DIBRANCHIATE CEPHALOPODA.




DIBRANCHIATE CEPHALOPODA, RECENT AND FOSSIL.

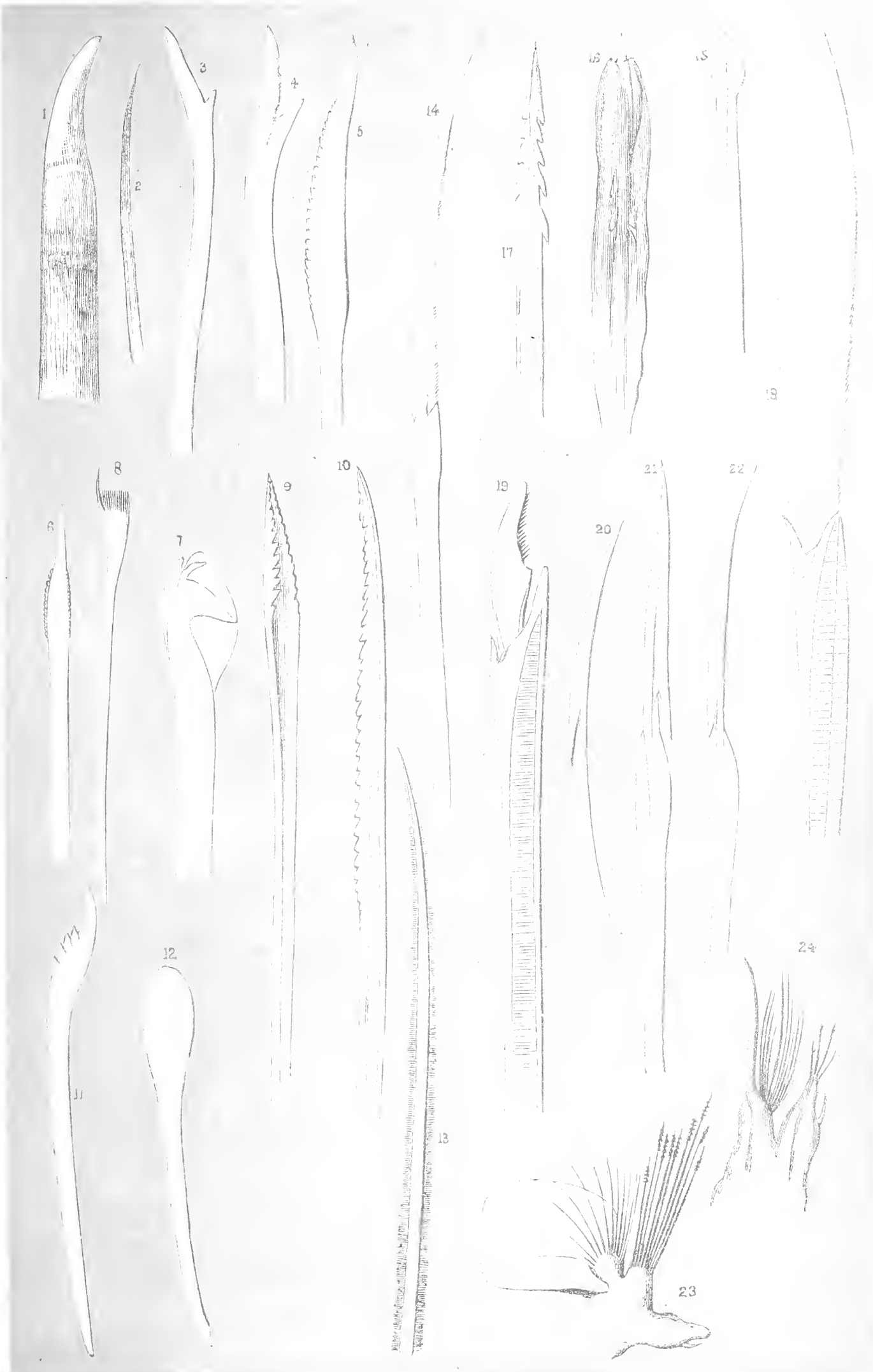
AUGUSTUS.

A Cameo in the Blacas Collection, lately added to the British Museum.

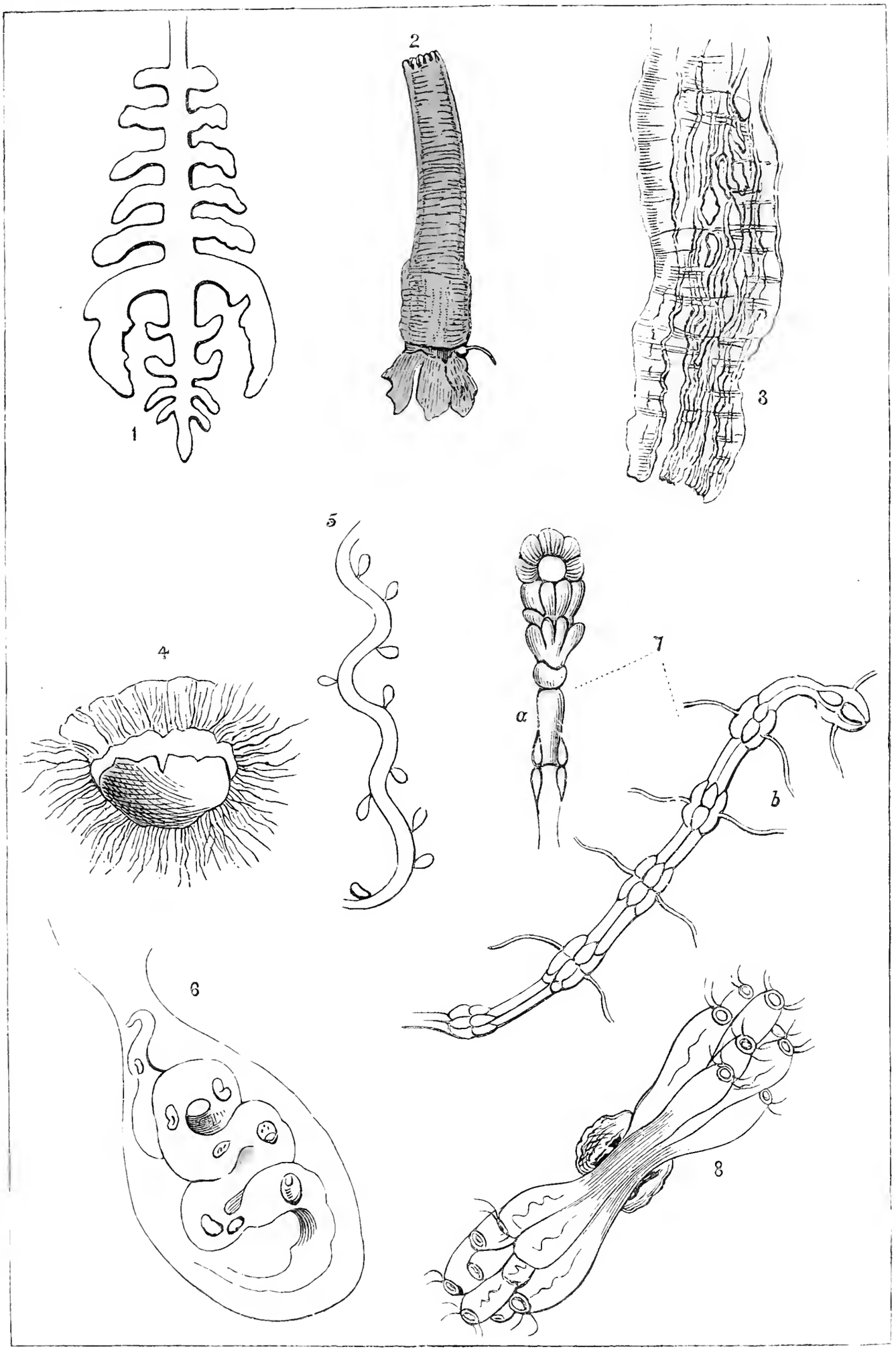



RECENT SHELL-FORMS.

1. Cleodora pyramidalis.
2. Bulimus regina.
3. Tropidophora carinata
4. Helix (Anastoma) globulus.
5. Ditto, under side.
6. Patella longicosta.
7. Murex adustus.
8. Dentalium elephantinum.
9. Vermetus lumbricalis.
10. Siliquaria anguina.
11. Waldheimia australis
12. Isocarina cor.
13. Aspergillum vaginiferum.
14. Chiton squamosus.



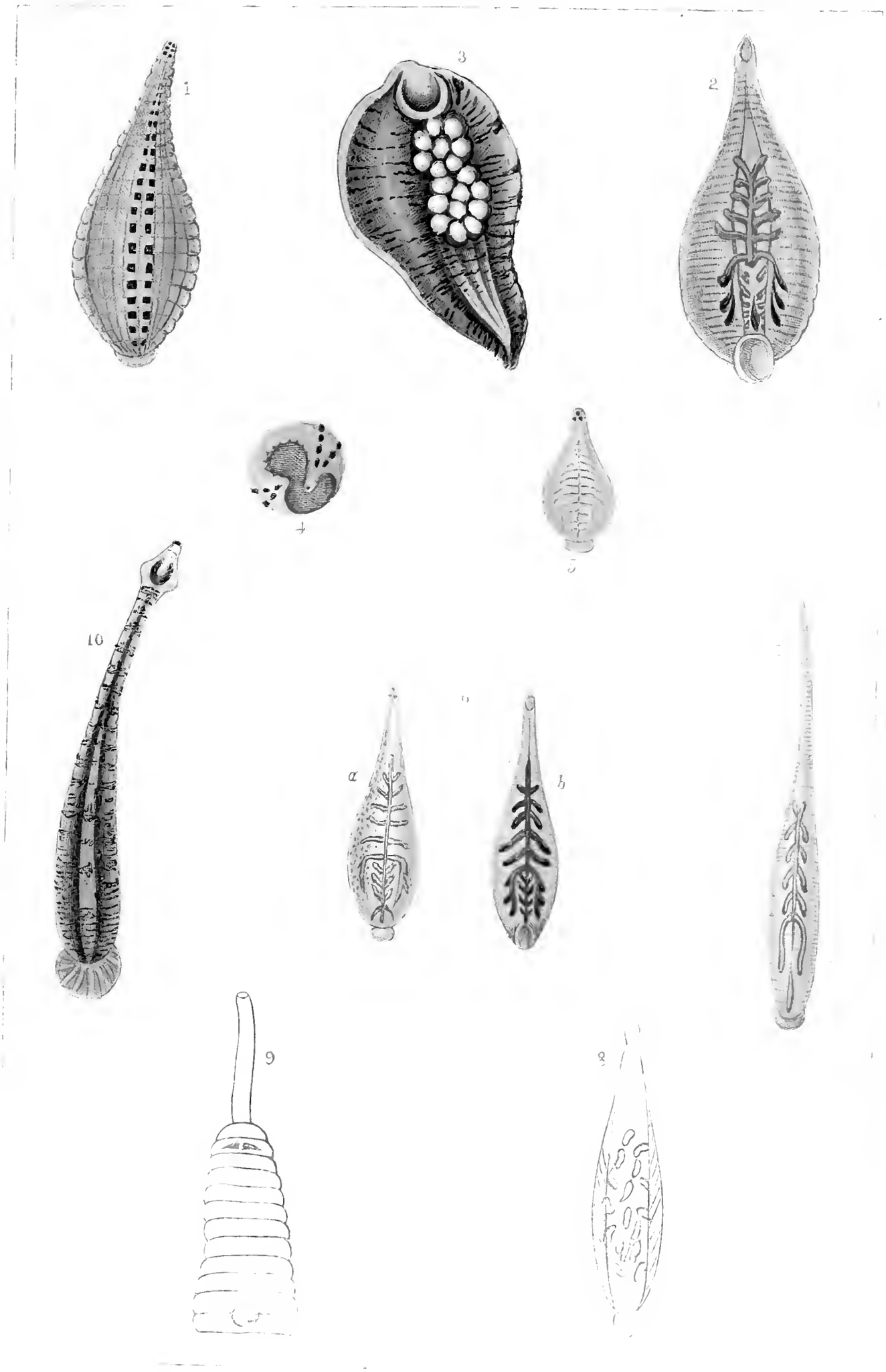

SETÆ OR BRISTLES OF ANNELIDA.




SNAIL LEECHES.

Glossiphonidæ.

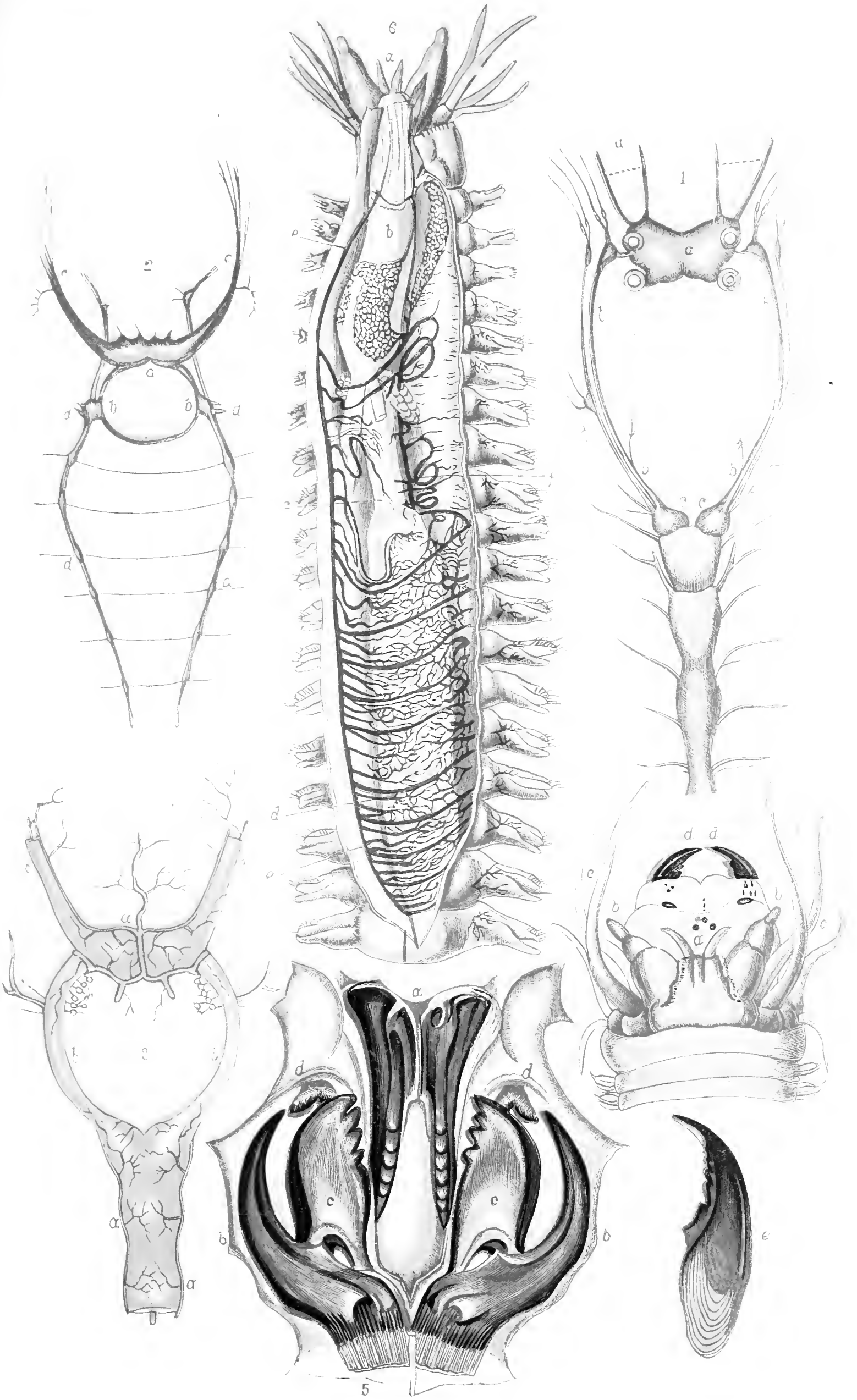
1, Digestive apparatus of a Glossiphon.
2, Tubular proboscis, mag. 20 diameters.
3, Portion of ditto, highly magnified.
4, Cup-shaped plate of G. bioculata.
5-6, Ovary.
7, Nervous system. *a*, Cephalic ganglia. *b*, Portion from body.
8, Parasites on cervical plate of G. bioculata.



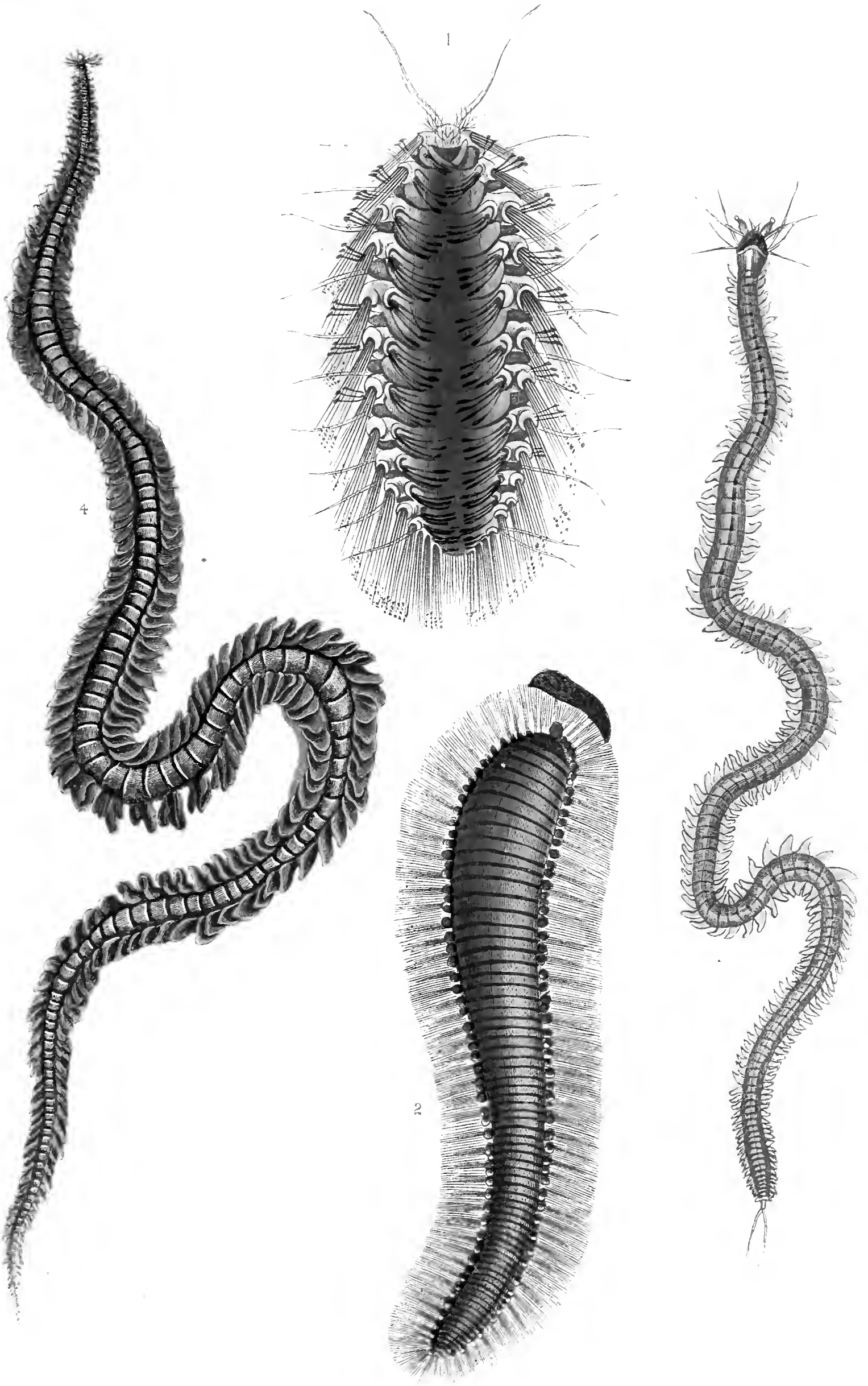

SNAIL LEECHES.

Glossiphonidæ.

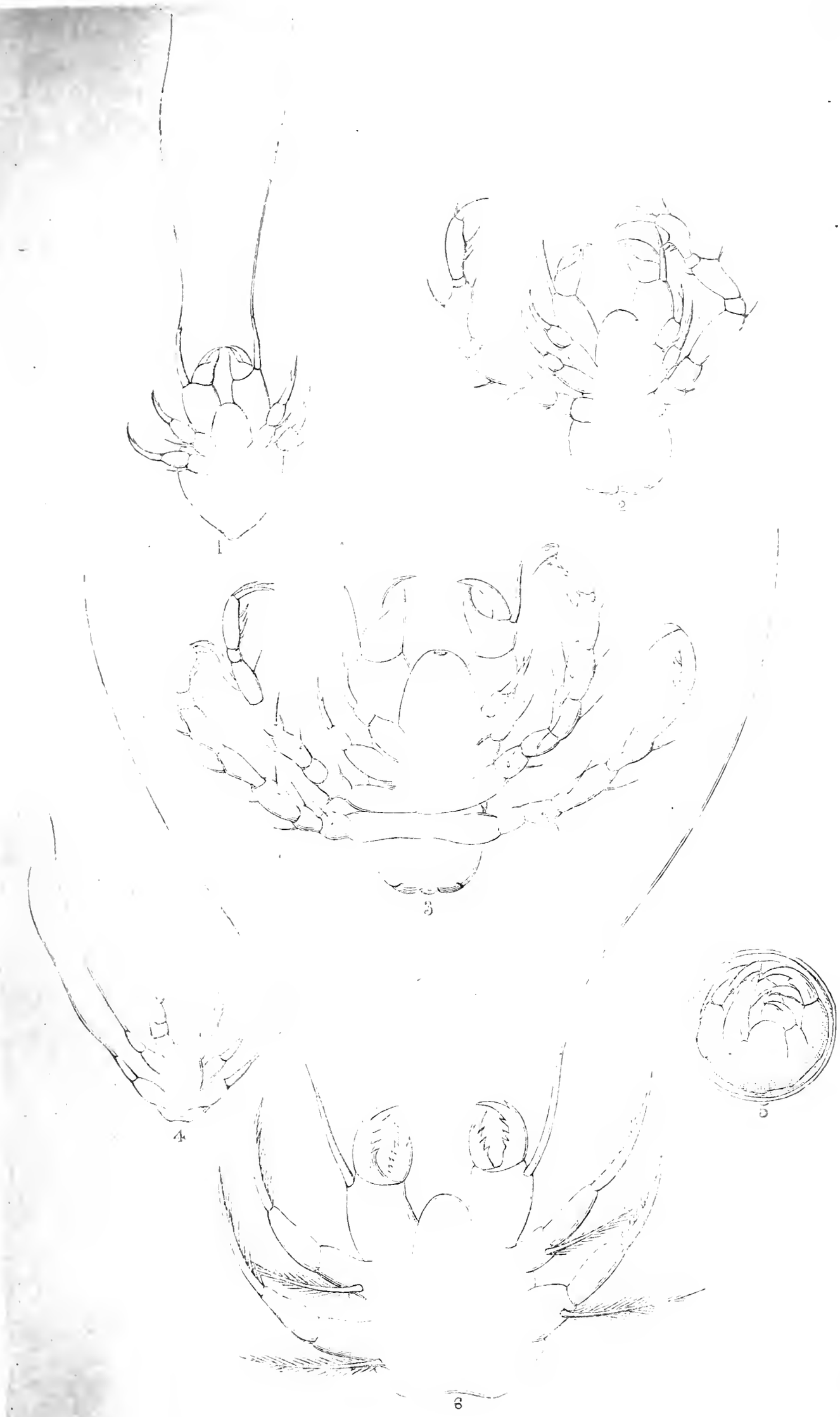
1-4, Glossiphonia complanata.
5-6, G. hyalina.
7-9, Glossiphonia bioculata.
10, G. marginata. All magnified.



NERVOUS AND CIRCULATORY SYSTEMS OF ANNELIDA.

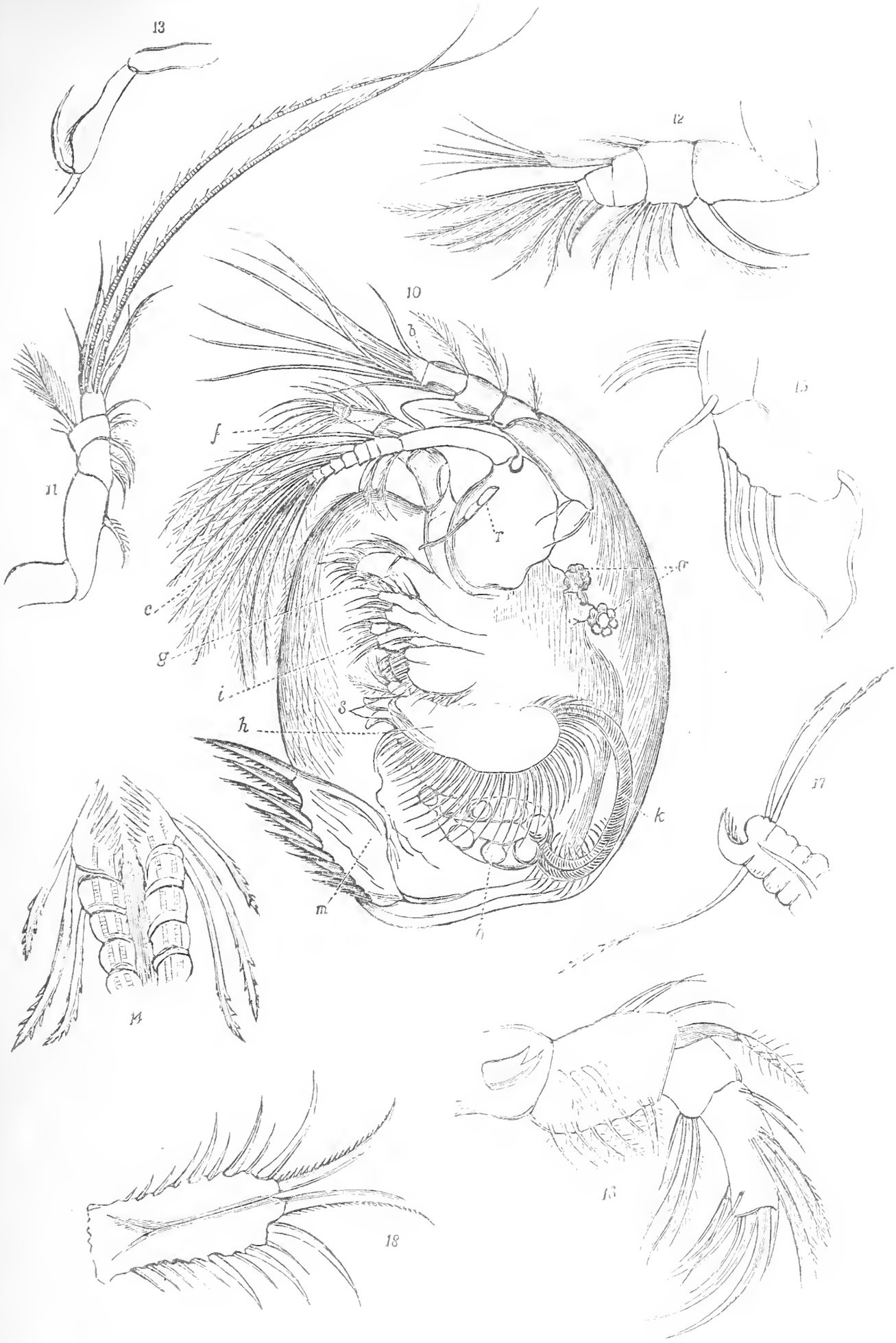



ANNELIDA ERRANTIA.

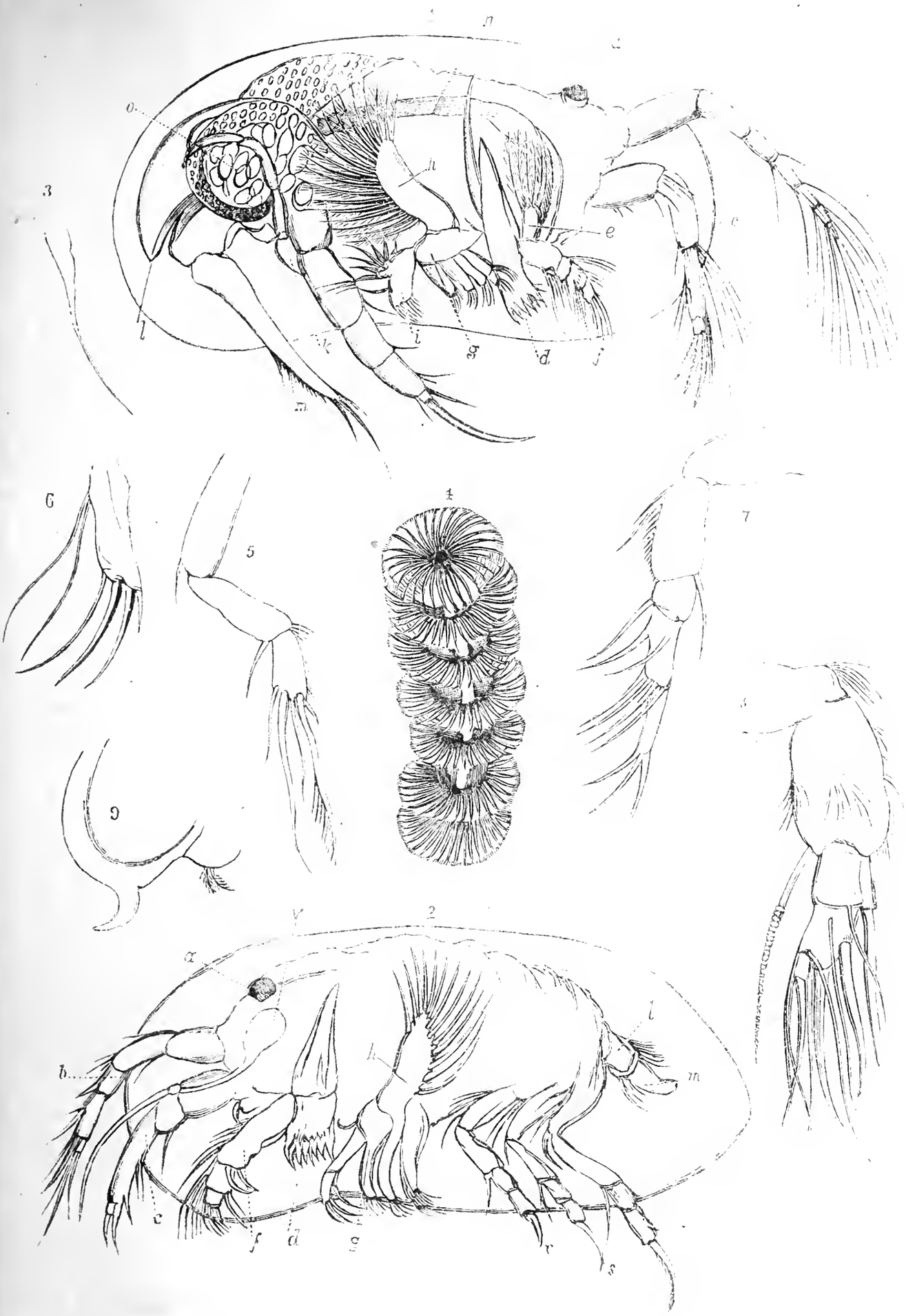



George Hodge

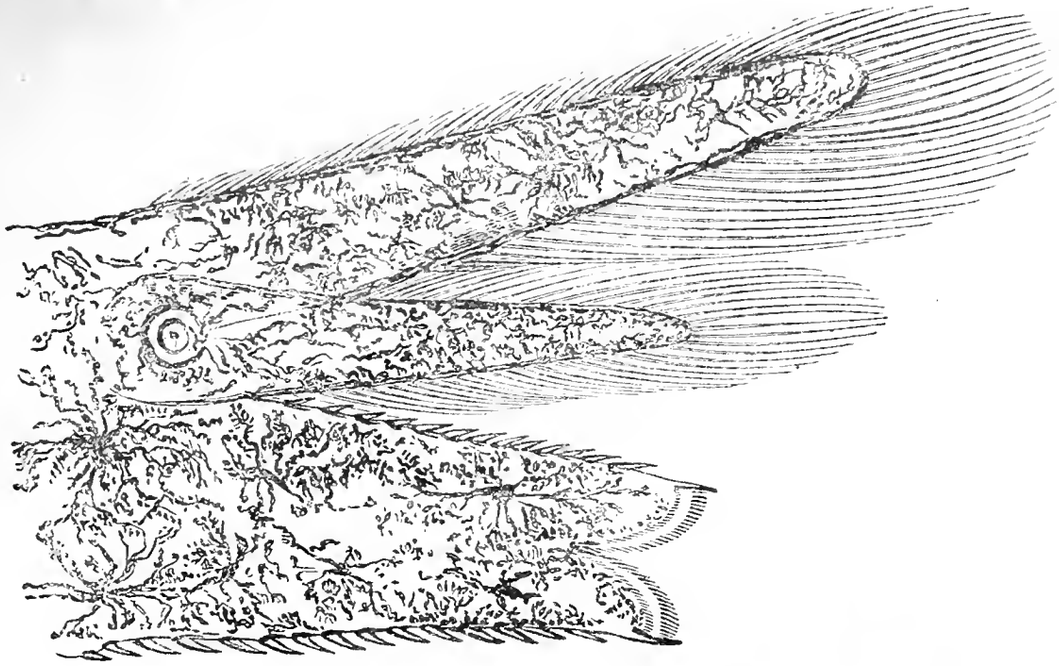
LONDON.




Anatomy of Cypridinidæ.




Anatomy of Cypridæ and Cytheridæ.



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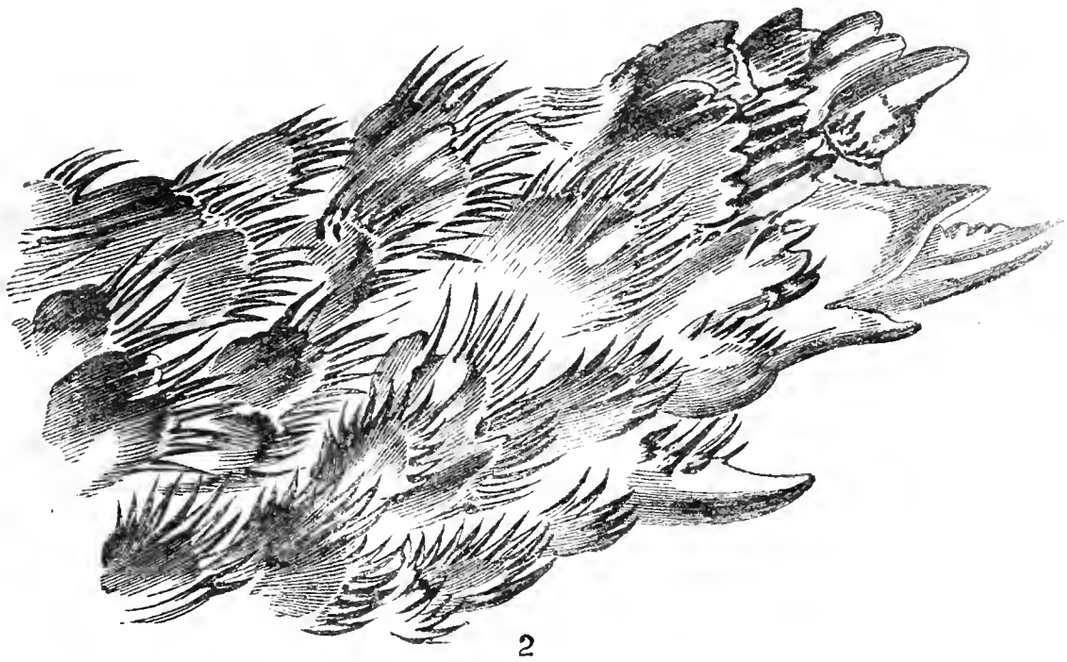

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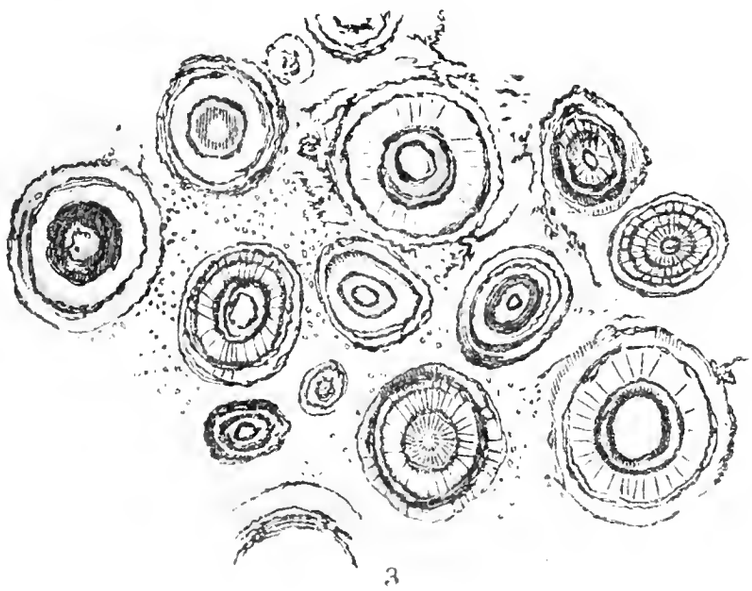
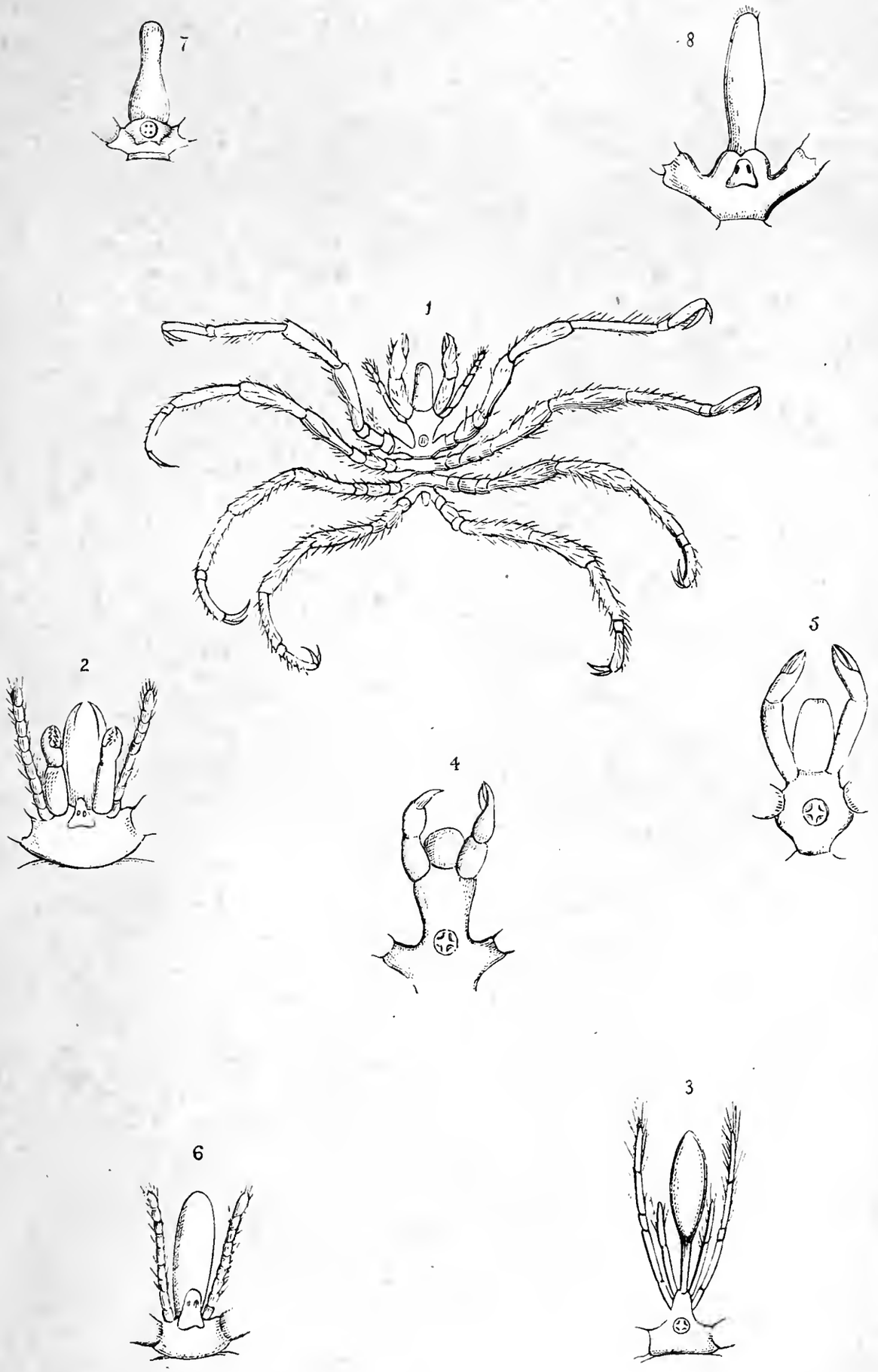


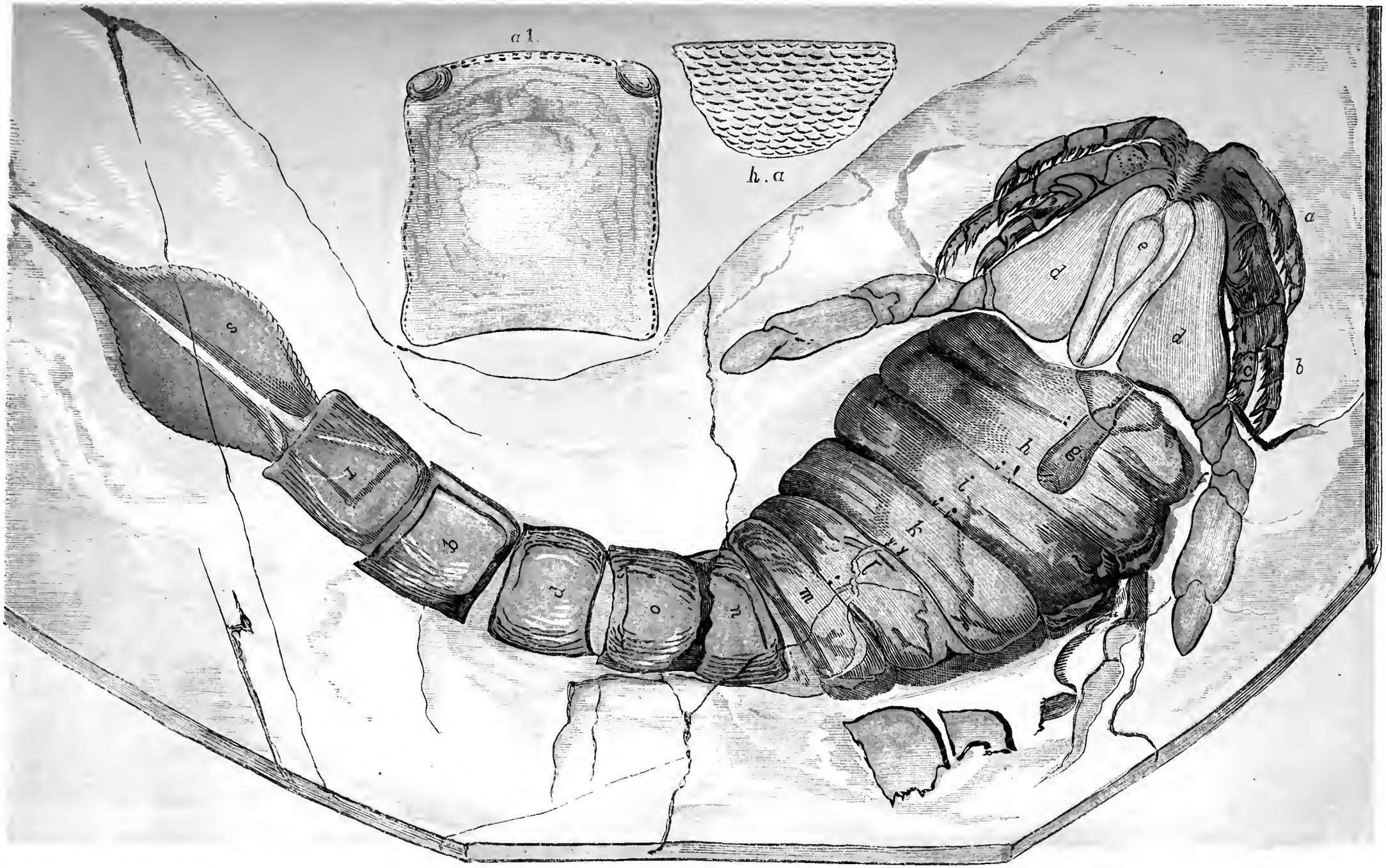
3

1. Tail of Opossum Shrimp.

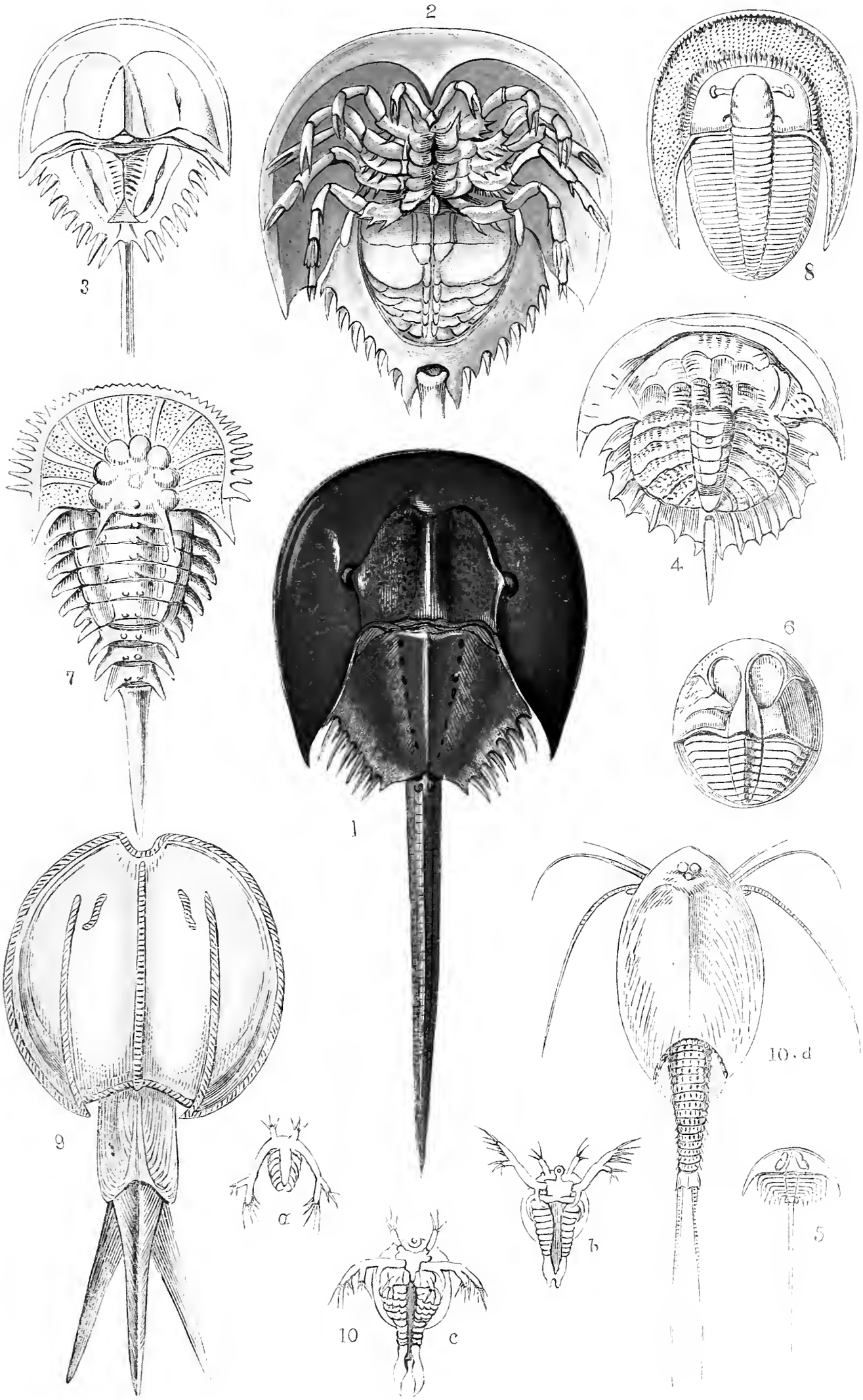
2. Claw of Violet Crab. 3. Section of Ch[illegible]




Pycnogons (Sea Spiders.)

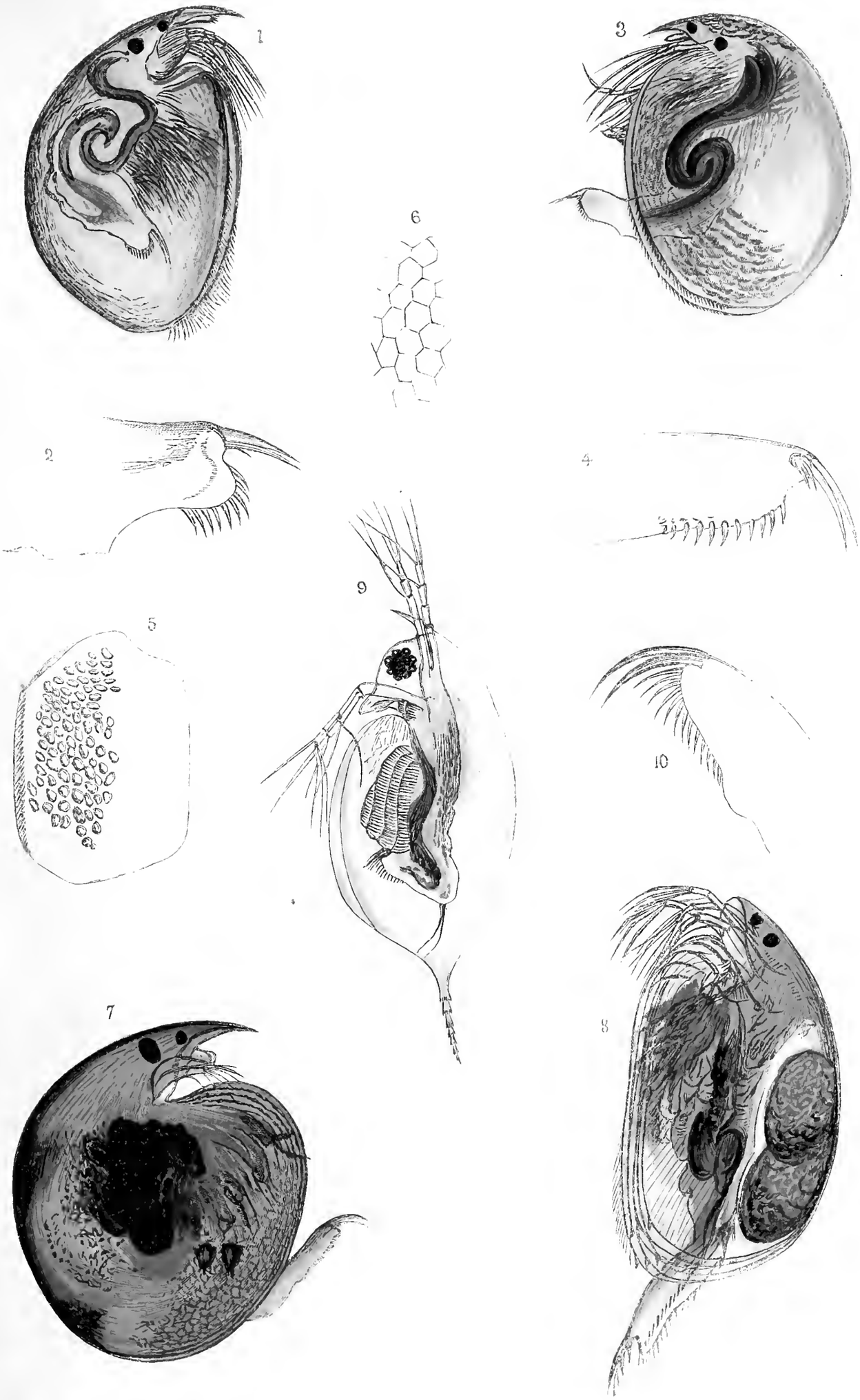



SLIMONIA (Pterygotus) ACUMINATA, Salter. Sp.
Upper Ludlow Rock. Lesmahagow. ⅓ natural size. —From a specimen in the British Museum.

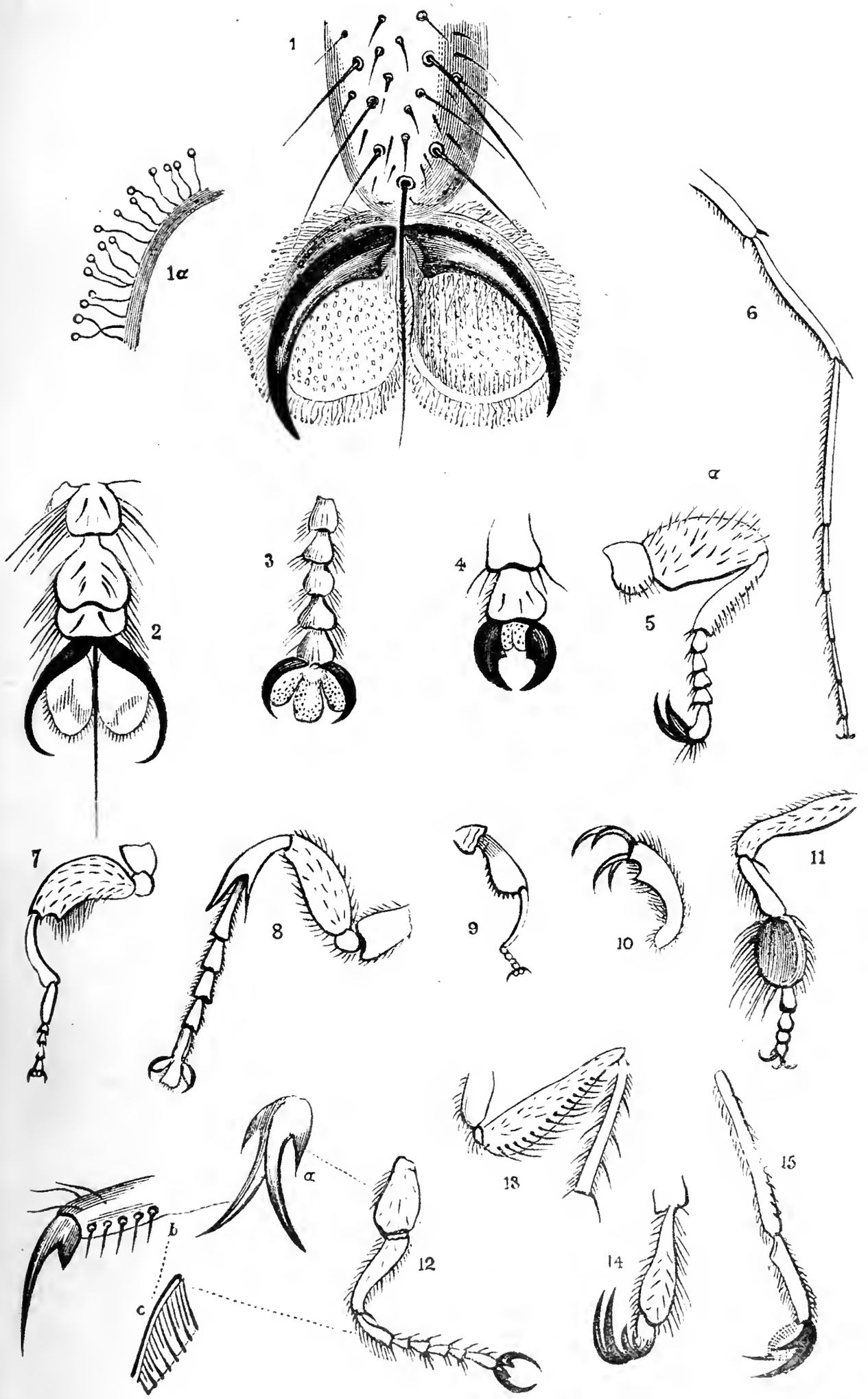



SHIELD-BEARING CRUSTACEA.

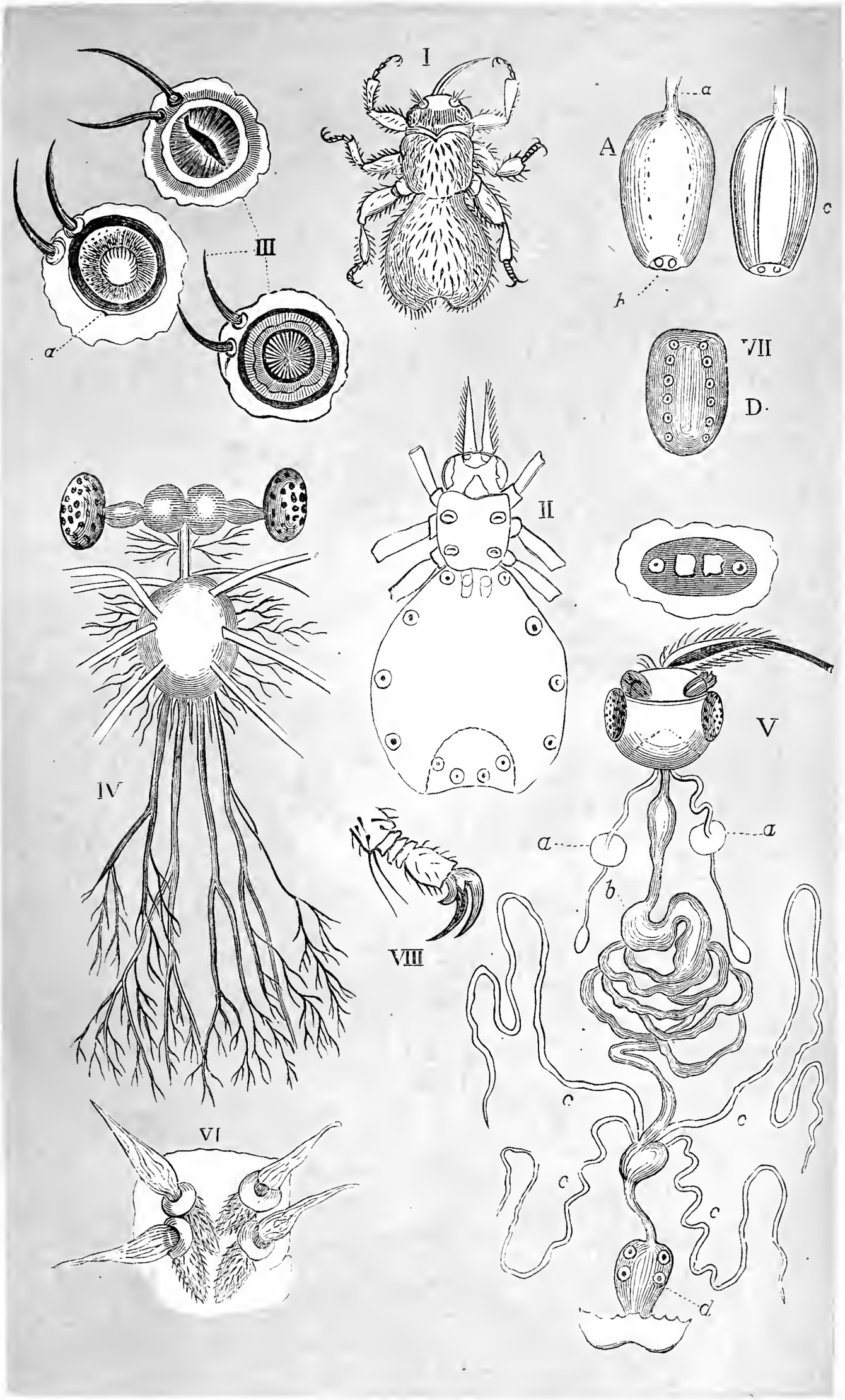
(Recent and Fossil.)



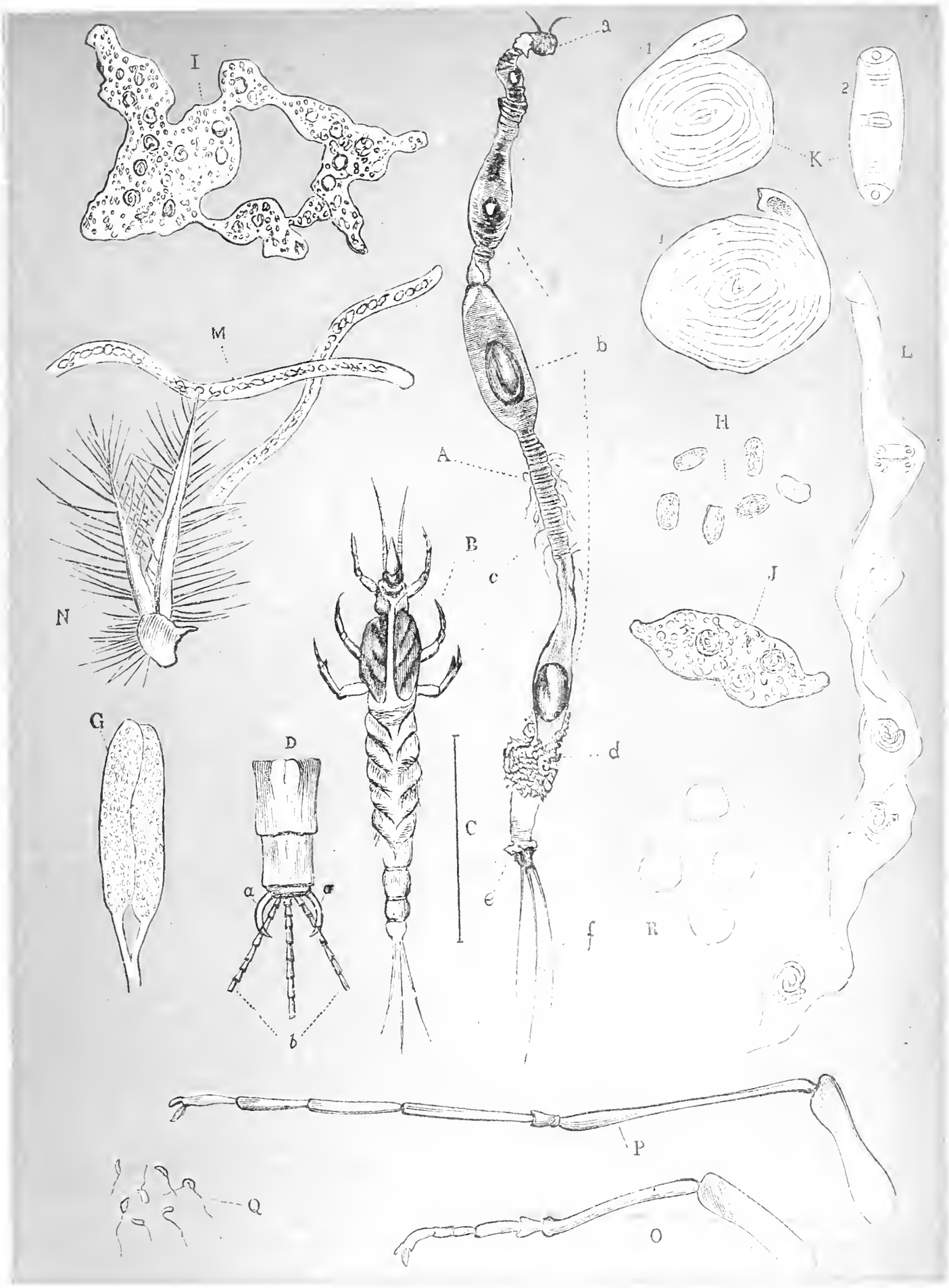

British Lacustrine Entomostraca.




Feet of Insects.




Melophagus, or Sheep Tick.

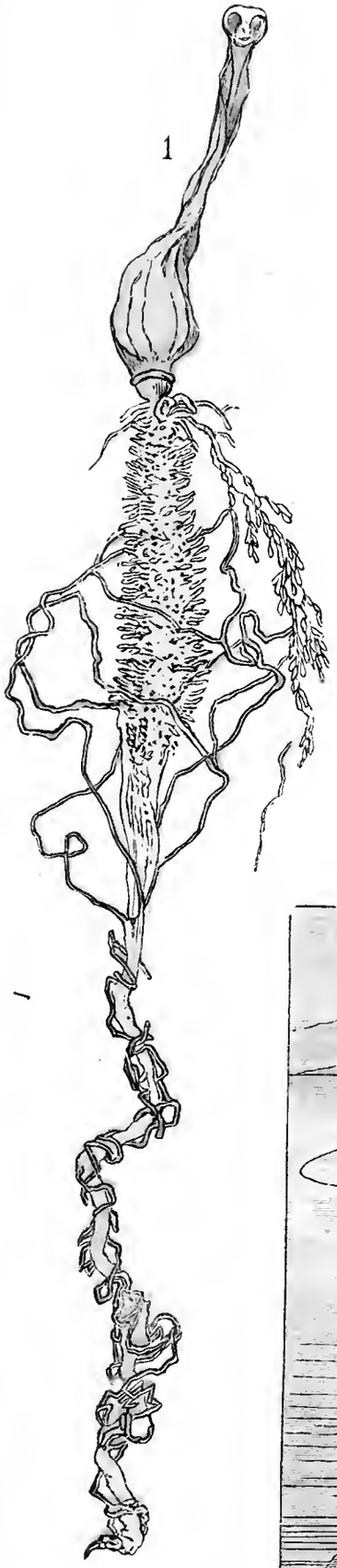


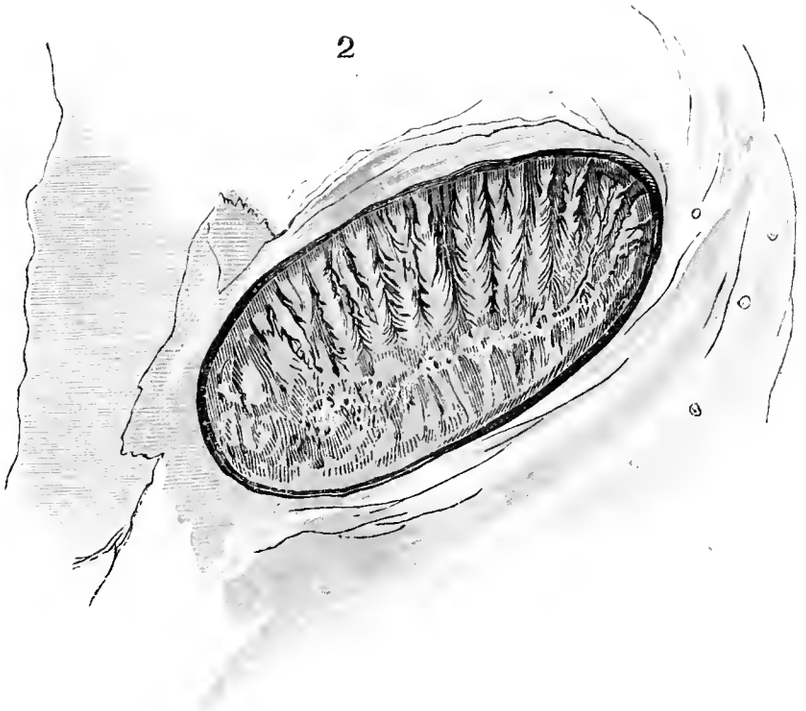

THE MAY FLY.—GREEN AND GREY DRAKE.

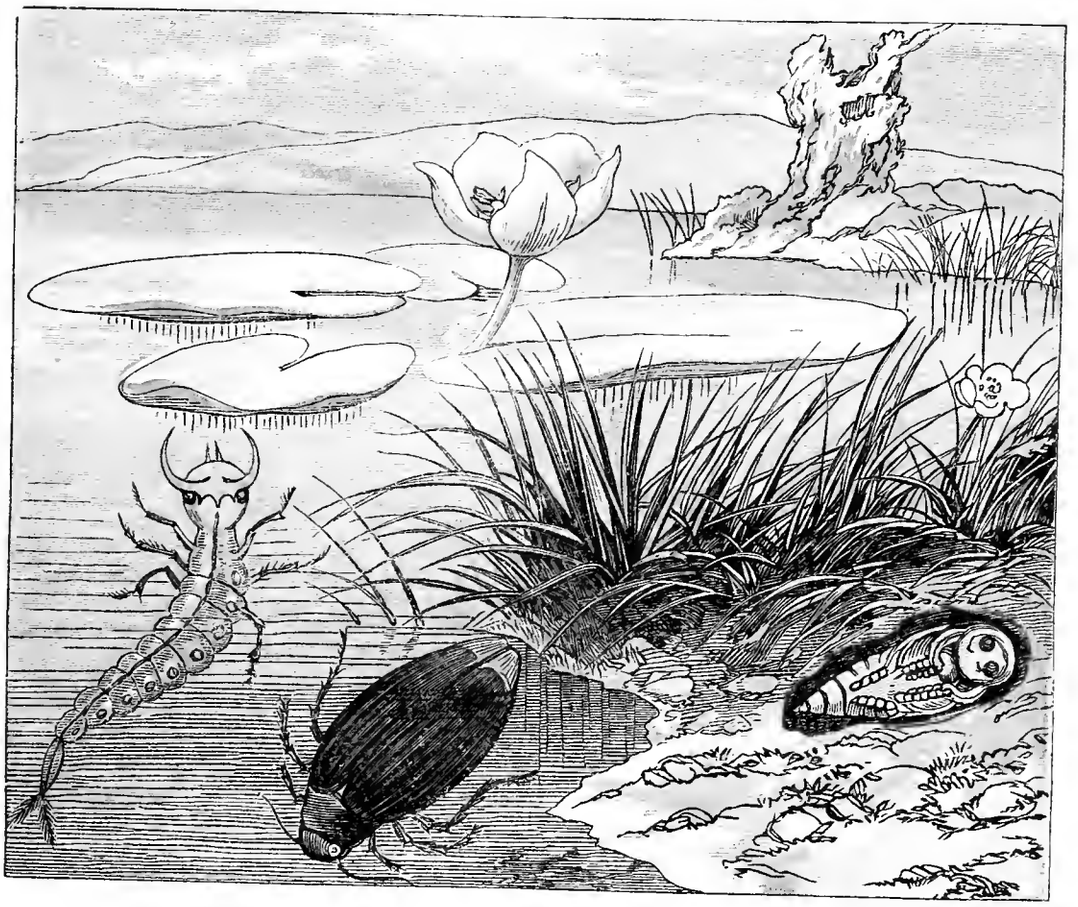
*(Ephemera vulgata.)*

A.—Digestive apparatus of Ephemera (magnified.) *a*, Head. *b*, Portions of digestive apparatus, inflated with air-bubbles. *c*, Stomach, with rudimentary biliary tubes. *d*, Enlarged mass of secreting organs generally called renal. *e*, Anus. *f*, Caudal setæ. G, Ovaries, magnified. H, Ova, (mag. 20 diam.) I, Portion of biliary vessel in immature (sub-imago) insect, [illegible] curiously shaped bodies marked with concentric lines, (magnified.) J, Small portion of [illegible] more highly magnified. K, The curious organs (1, front view, 2, side view) resembling [illegible] Naviculæ, mag. 400. L, Membranous biliary filament in perfect insect (imago) conta[illegible] above-named bodies, mag. 200. M, Single renal vessels. N, External respiratory [illegible] nympha. O, Front leg of female imago. P, ditto of male. Q, Spermatozoa. R, Bi[illegible] highly magnified. B.—Nympha of Ephemera vulgata, (magnified.) C.—Nat. size.

D.—Under side of last segments of male imago, shewing, *a*, clippers, and position of setaceous appendages at *b*.

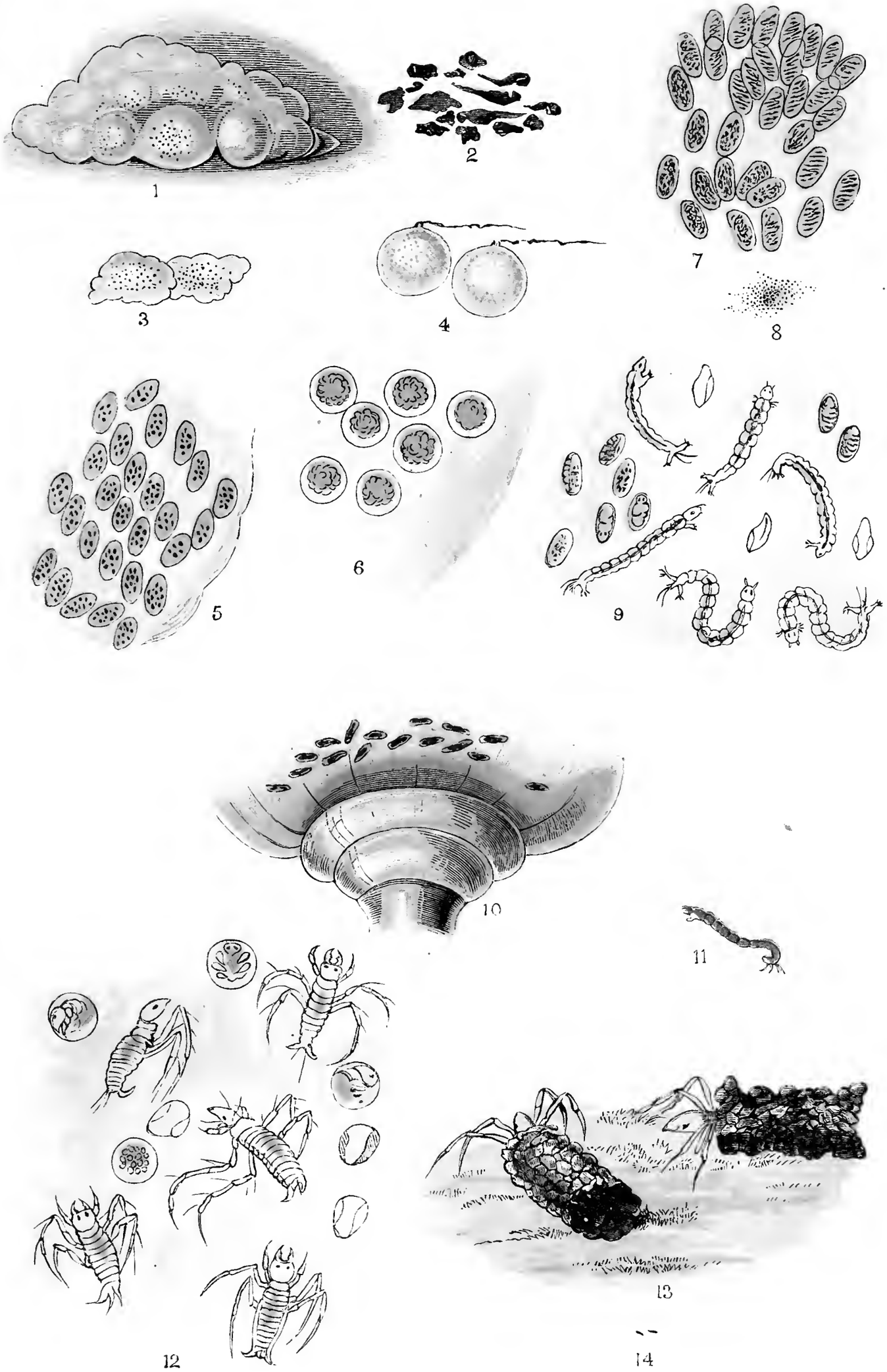


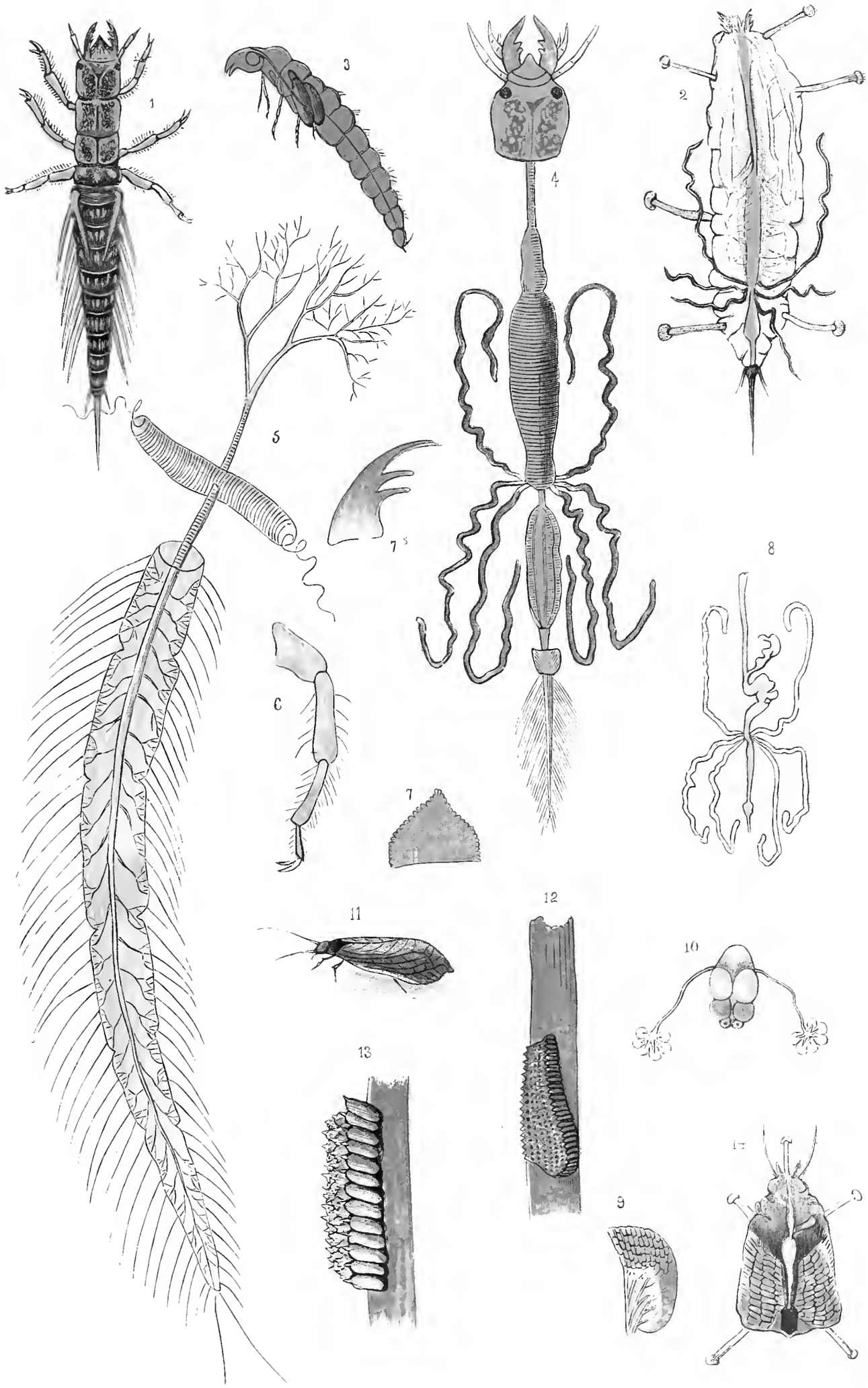



THE GREAT WATER BEETLE.

1. Digestive apparatus of Dyticus marginalis.
2. Spiracle of ditto, magnified.

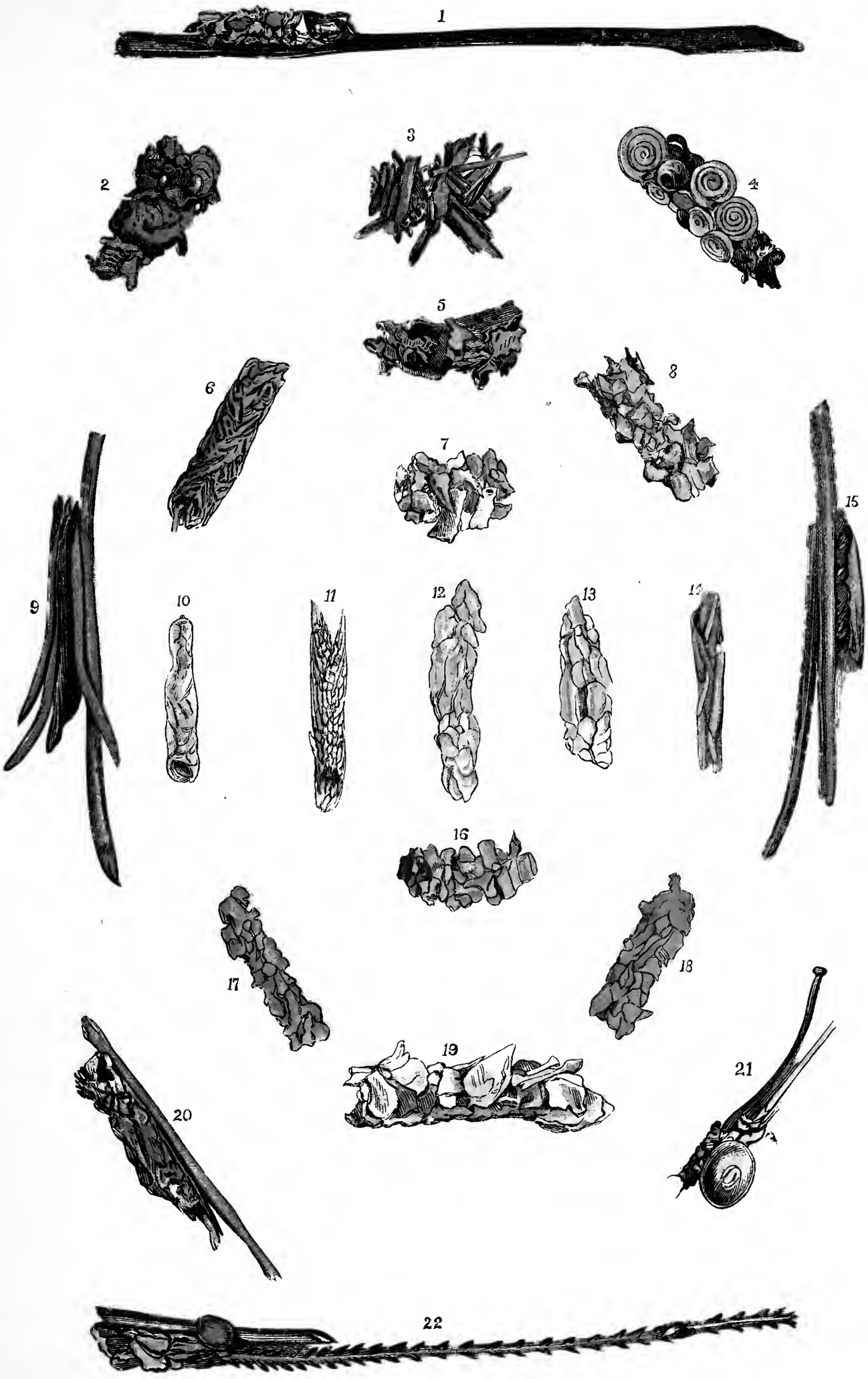



A Windfall for the Microscope."




THE ALDER FLY, (Sialis lutarius.)

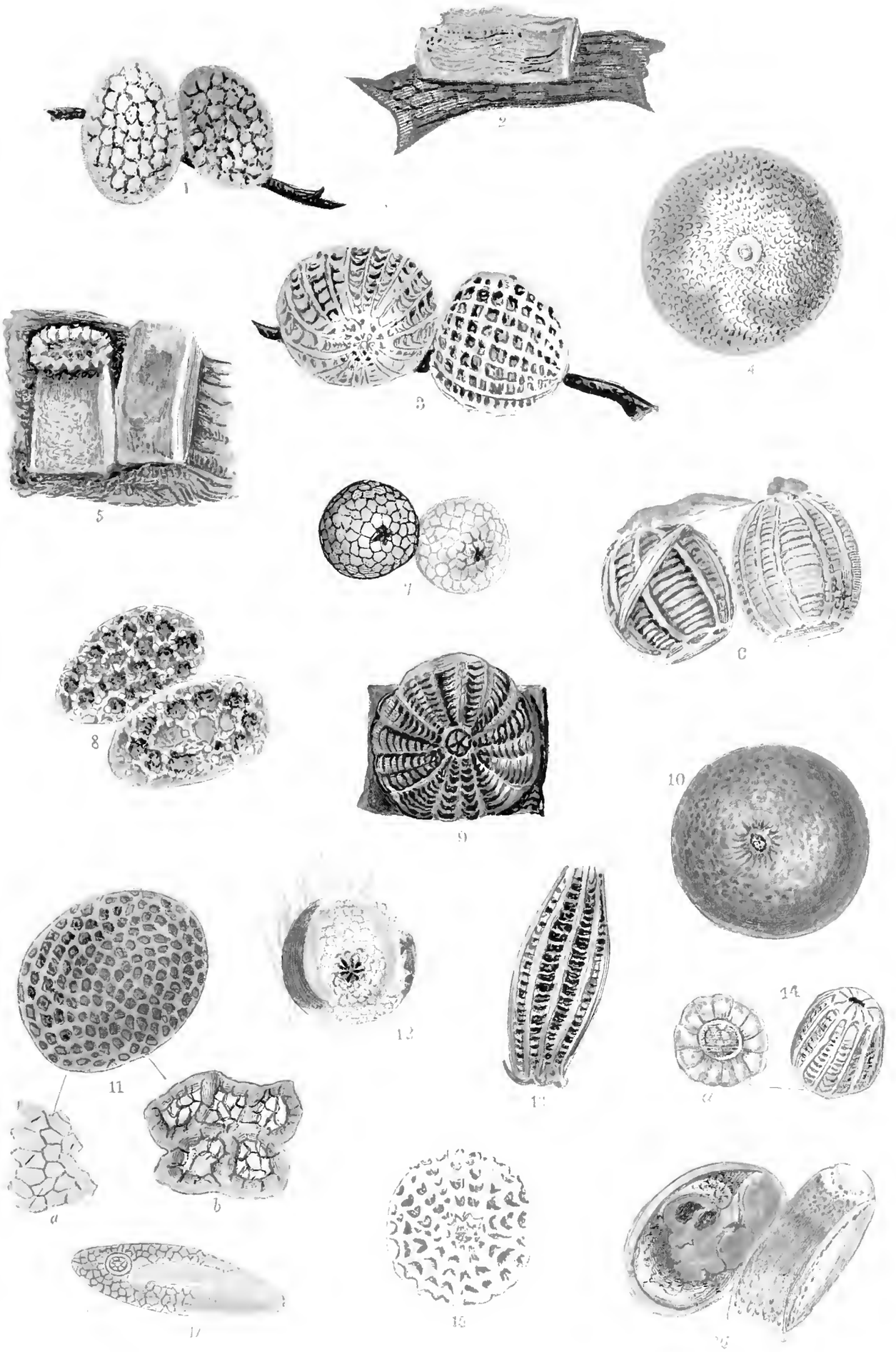
1. Larva of Sialis lutarius, mag. 2 diams.
2. Ditto, laid open.
3. Nympha of Sialis.
4. Digestive apparatus of larva, magnified.
5. One of the branchial filaments, mag.; shewing tracheal branchlet.
6. Leg of larva.
7. Labium of ditto. 7*. Mandible.
8. Digestive apparatus of perfect insect.
9. Ovary of.
10. Male generative organ.
11. Male insect.
12. Cluster of eggs on bit of Sparganium.
13. Ditto, magnified.
14. Female insect, laid open.




A. T. Elwes, Del.

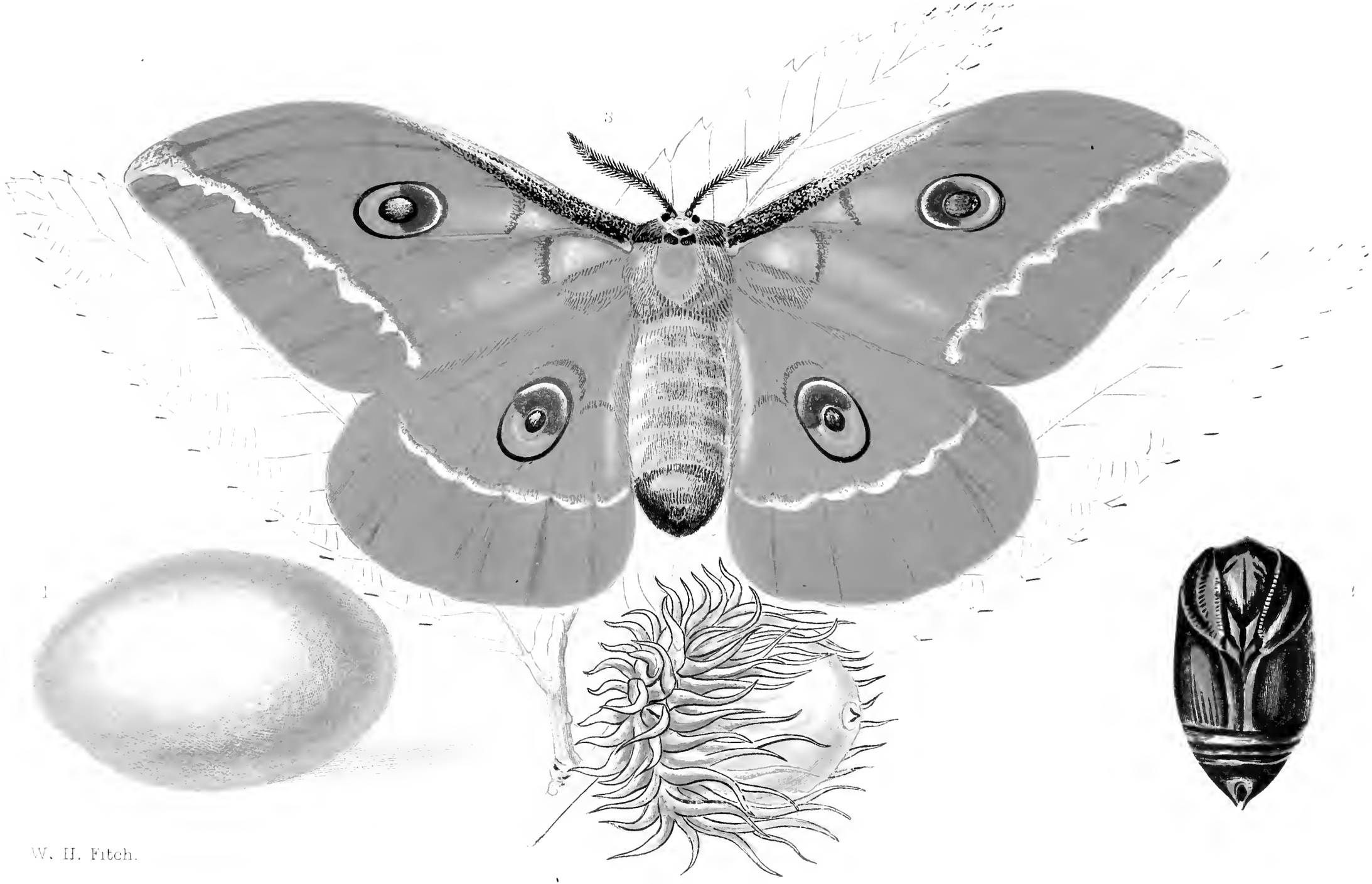
Cases of the Caddis Worm.

THE MAY FLY.—GREEN AND GREY DRAKE.
(*Ephemera vulgata.*)

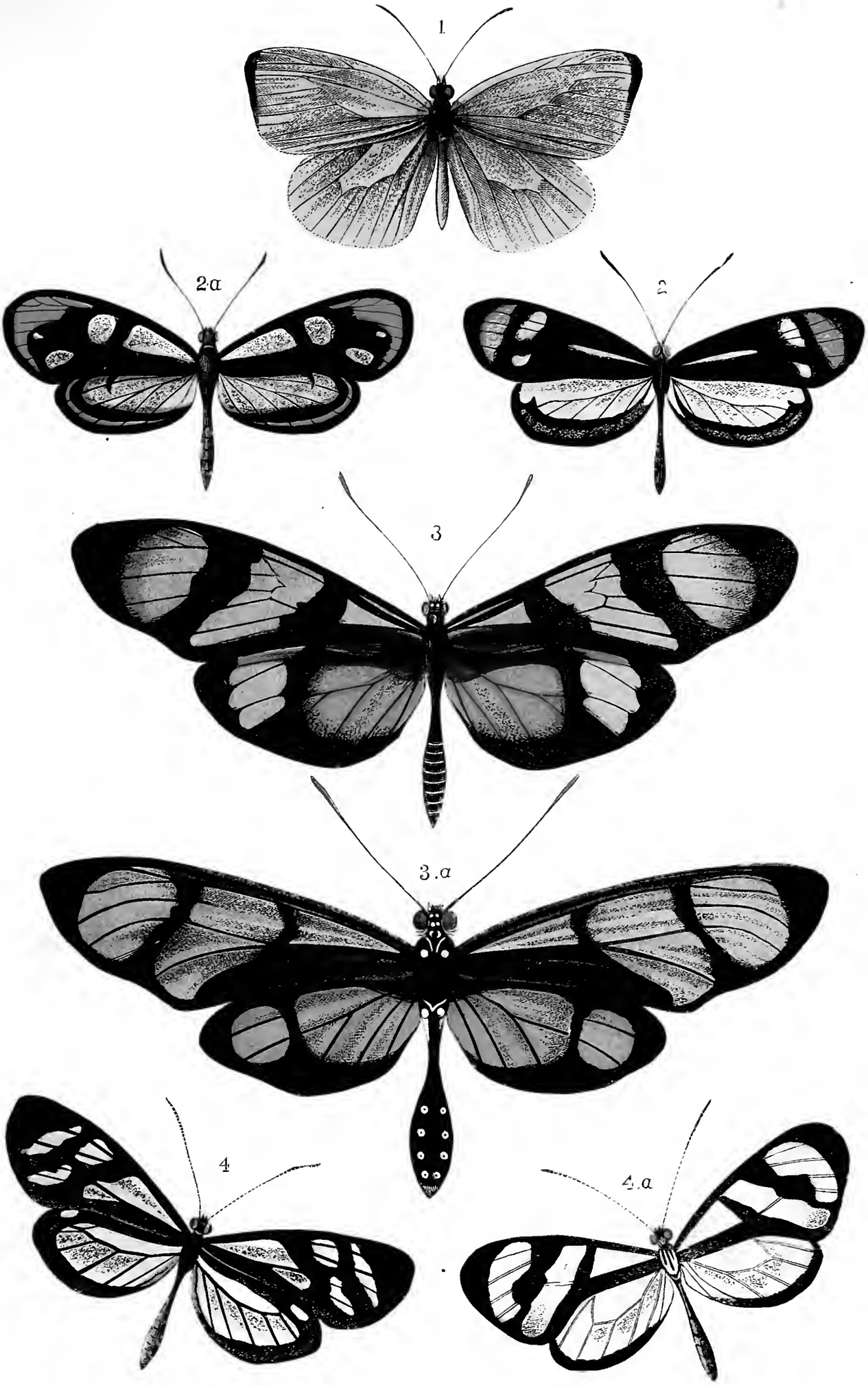



W. F. Maples, del.

INSECT EGGS.




OAK-FEEDING SILKWORM OF CHINA.
Antheræa Pernyii. Guer. Mene.




SOUTH AMERICAN BUTTERFLIES.

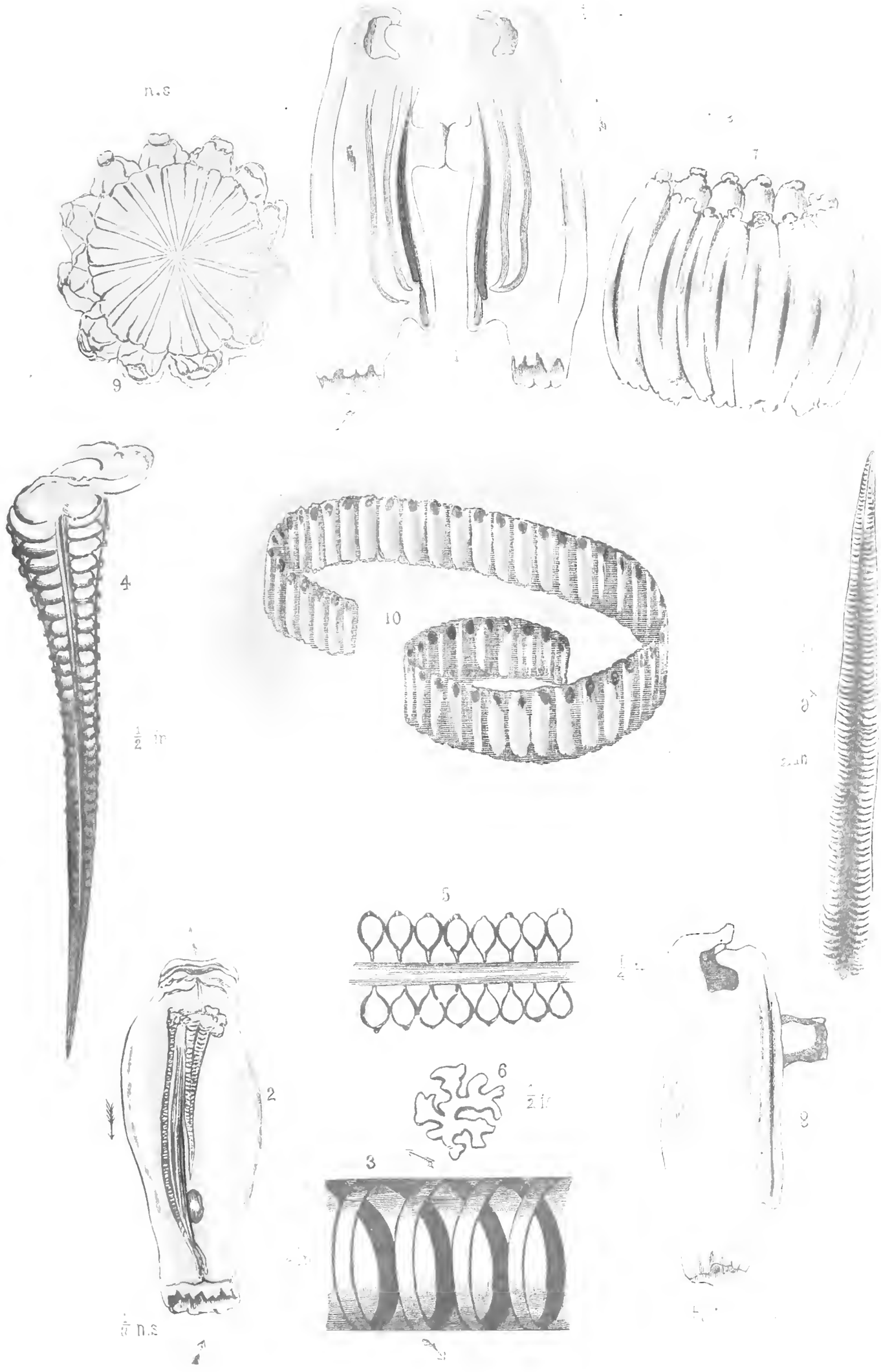
*Illustrating Mimetic Analogy.*

1. Leptalis Nehemia.
2. Leptalis Theonoë,
   var. Leuconoë.
2a. Ithomia Ilerdina.
3. Leptalis [illegible]
3a. Methona [illegible]
4. Leptalis [illegible]
4a. Ithomia Flora.

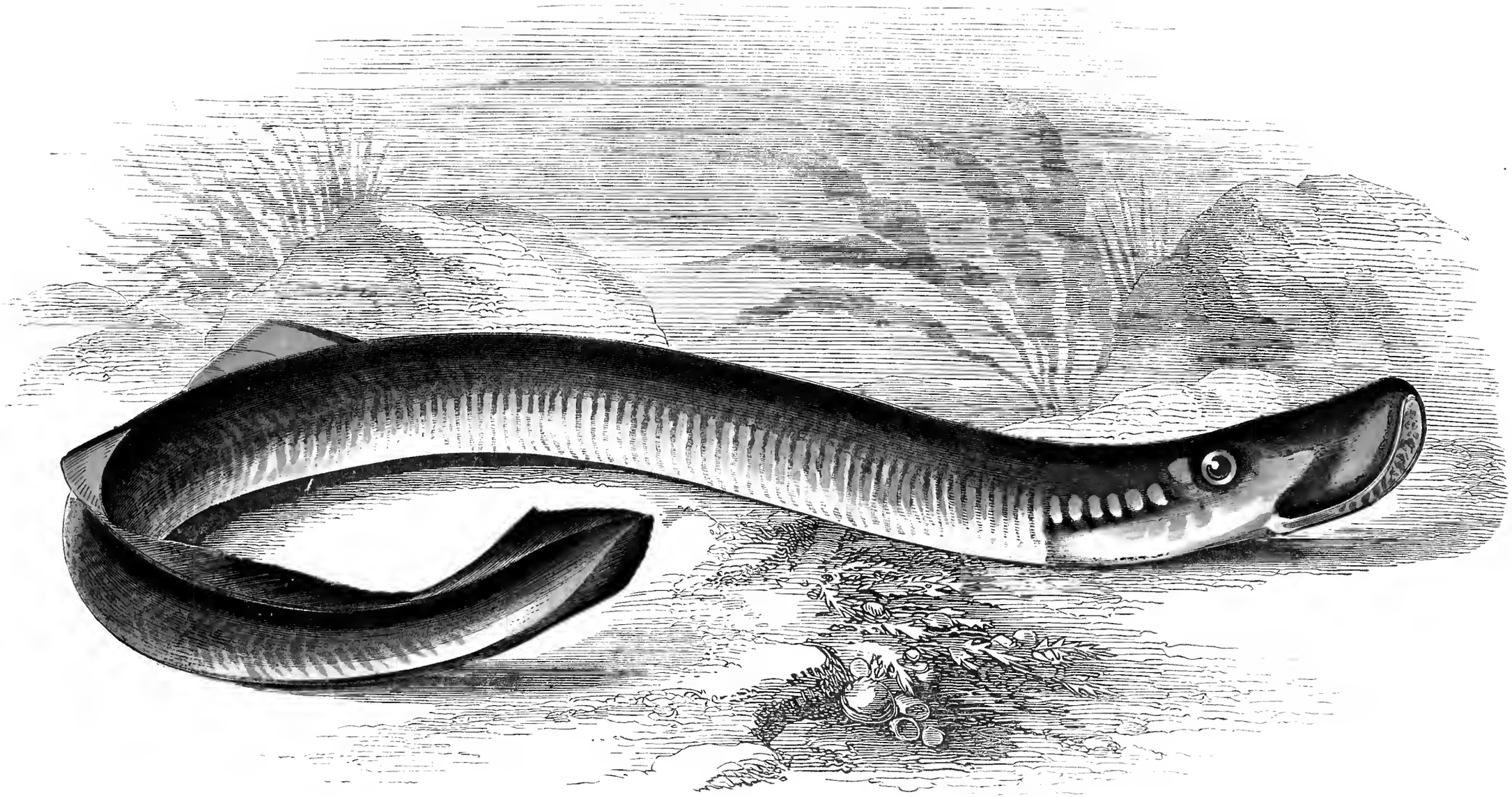
COLEOPHORA, (Tent-makers.)

BEES AND THEIR COUNTERPARTS

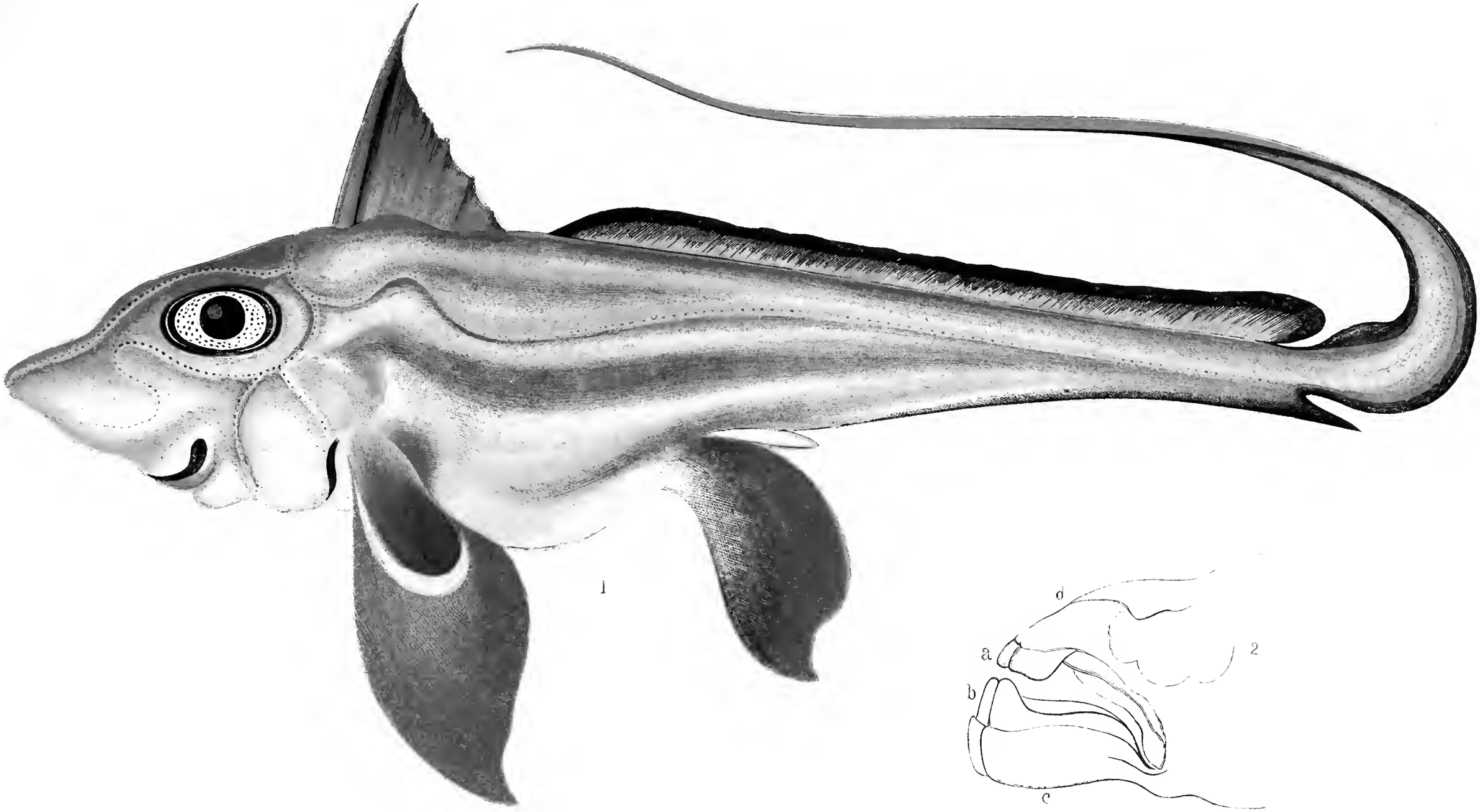
1. [illegible]
2. [illegible]
3. [illegible]
4. Chrysanthrax [illegible]
5. Eupeissa [illegible]
6. Anthophora [illegible]
7. [illegible]



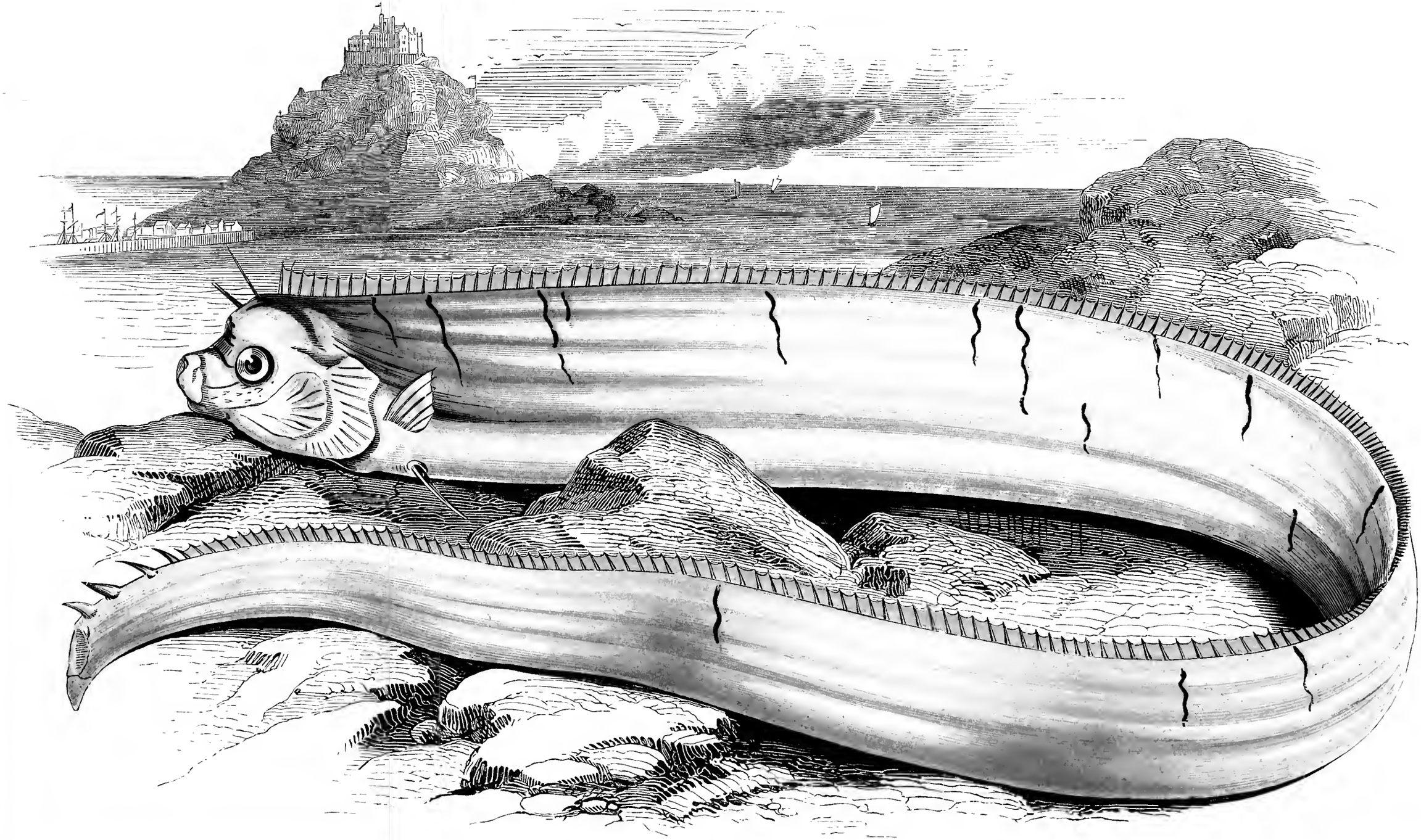

SALPÆ.



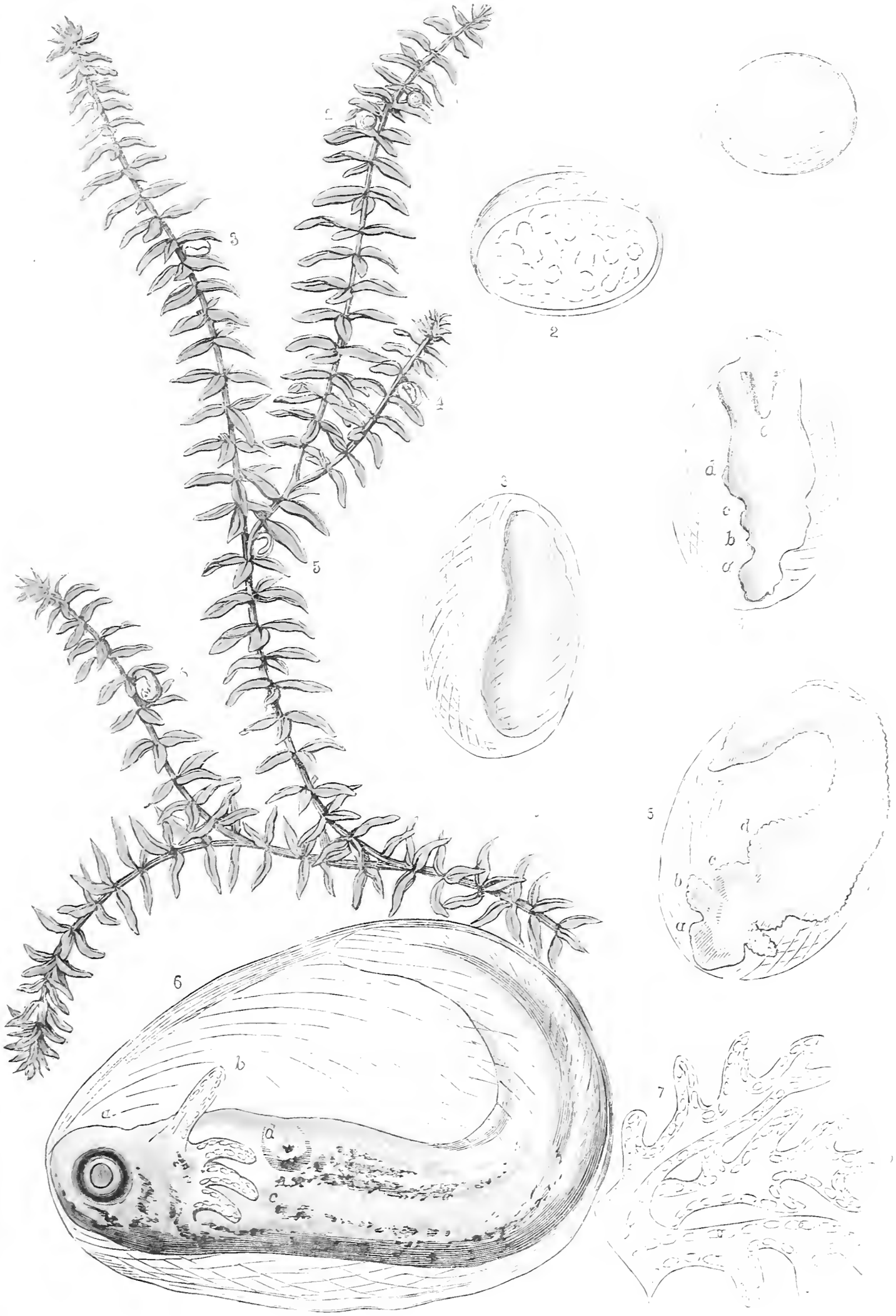
SEA LAMPREY.




Squalus Mediterraneus

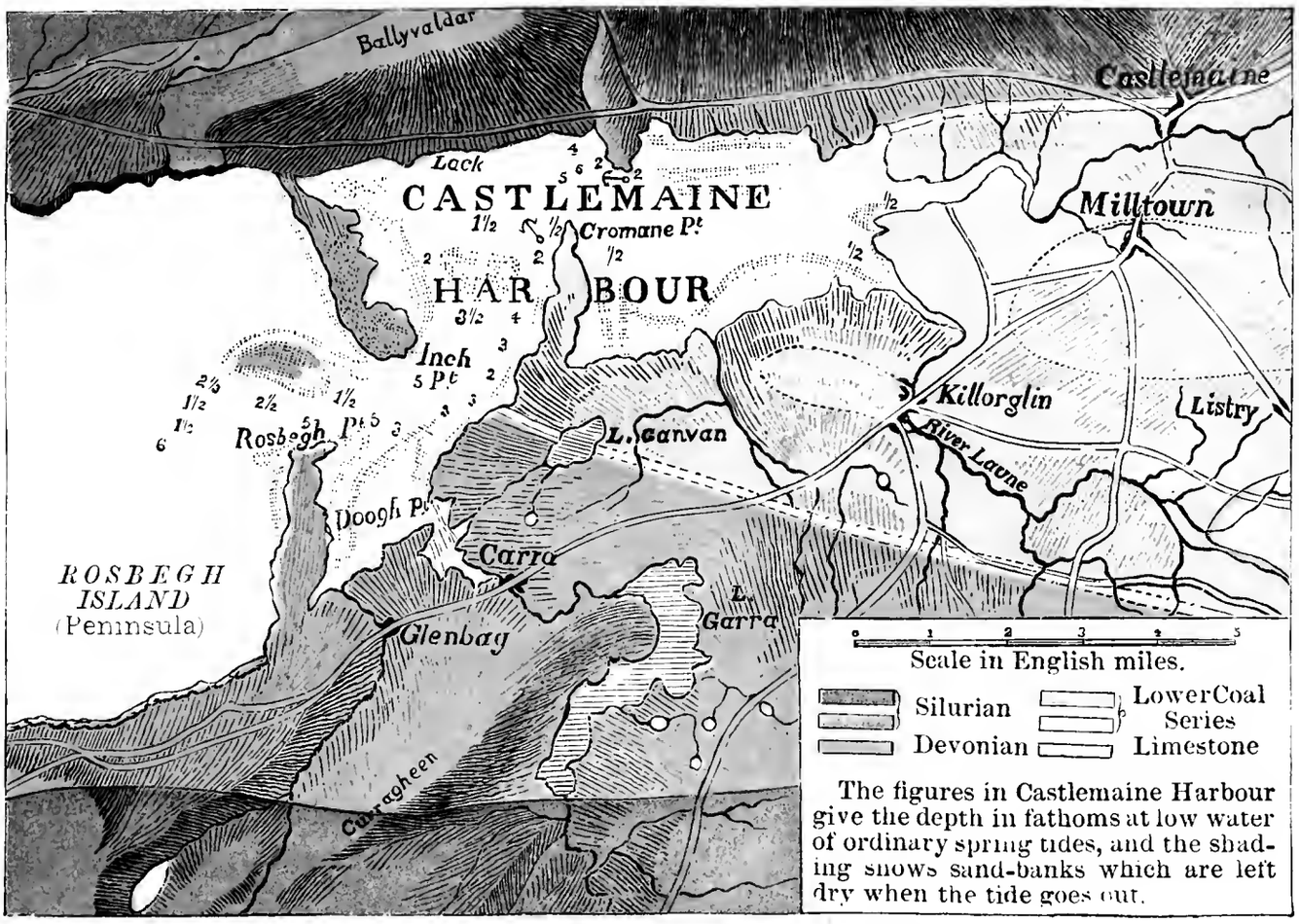


Banks's Oarfish.



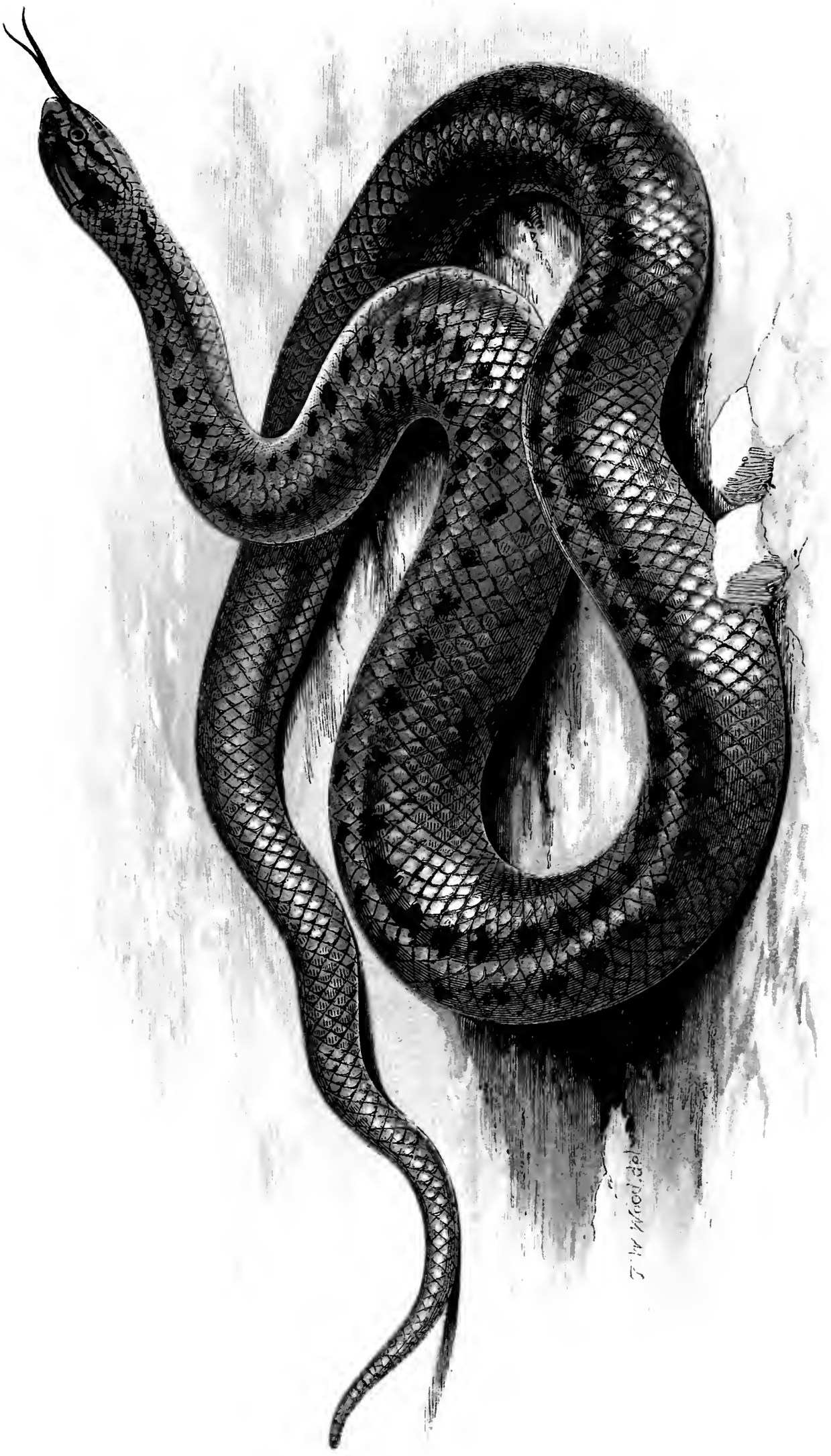

EGG [illegible] crystallus [illegible] ITS DEVELOPMENT

Fig. 1. Mar[illegible] Fig. 2. June 2. [illegible] Fig. 3. June 3. [illegible] June 4. [illegible] Fig. 5. [illegible] Fig. 6. [illegible] Fig. 7. [illegible] Fig. 8 [illegible] Fig. 9 [illegible] Fig. 10 [illegible]




Map of a small portion of the County of Kerry, showing the district in which the Natterjack Toad is found indigenous.

Natterjack Toad (Bufo Calamita) from Co. Kerry.


J. W. Wood del.

CHAMELEON.

Archæopteryx lithographica. H. VON MEYER.
Jahrbuch für Mineral: 30 Sept., 1861.

Griphosaurus problematicus. A. WAGNER.
1861. Sitzung: der Münchner Akad: der Wiss.

Griphornis longicaudatus. OWEN.
Nov., 1862, Trans: Royal Society.

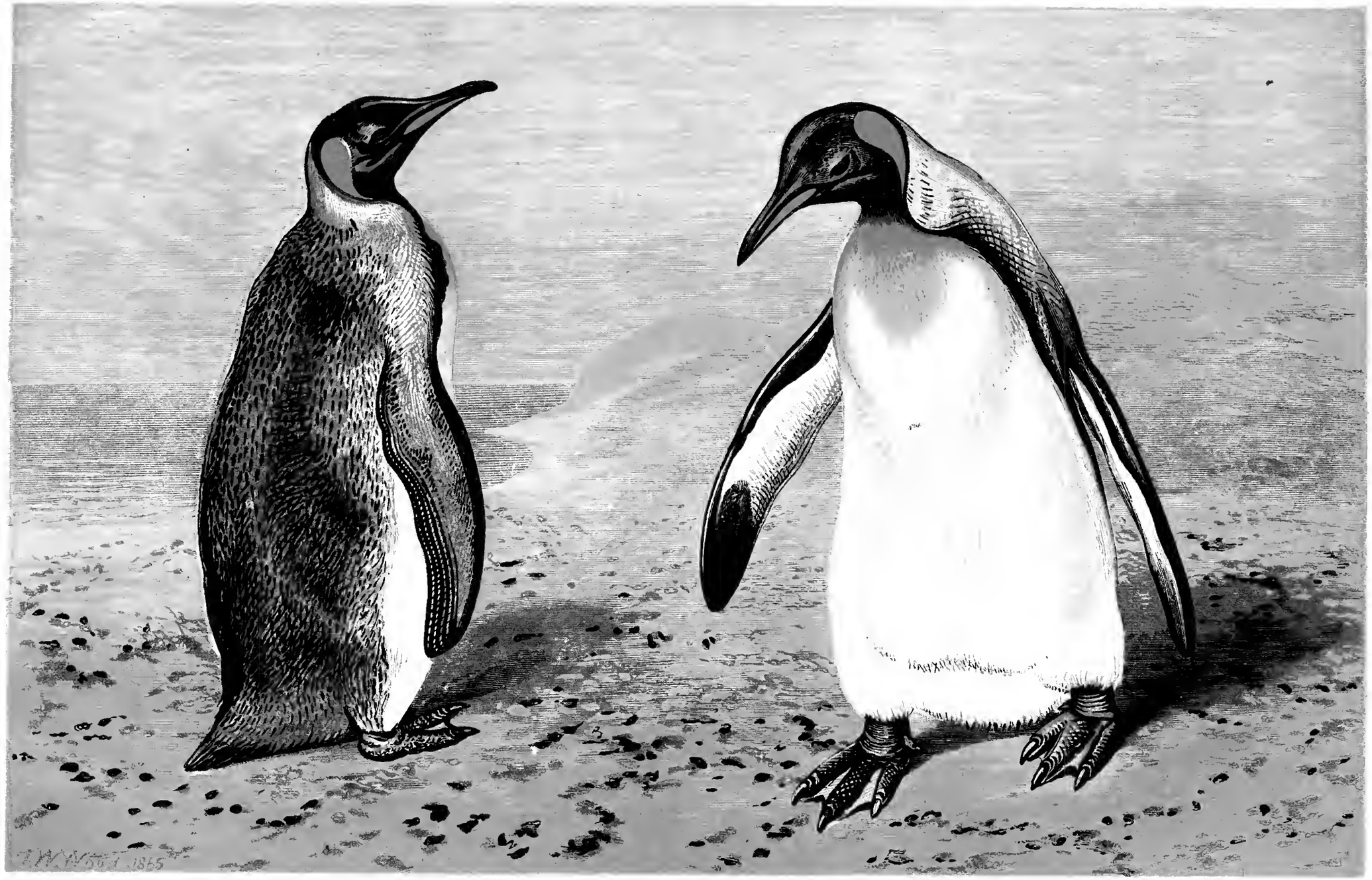
BRITISH WOODPECKERS.

BLUE-CHEEKED BARBET.

Megalaima asiatica, (Latham.)

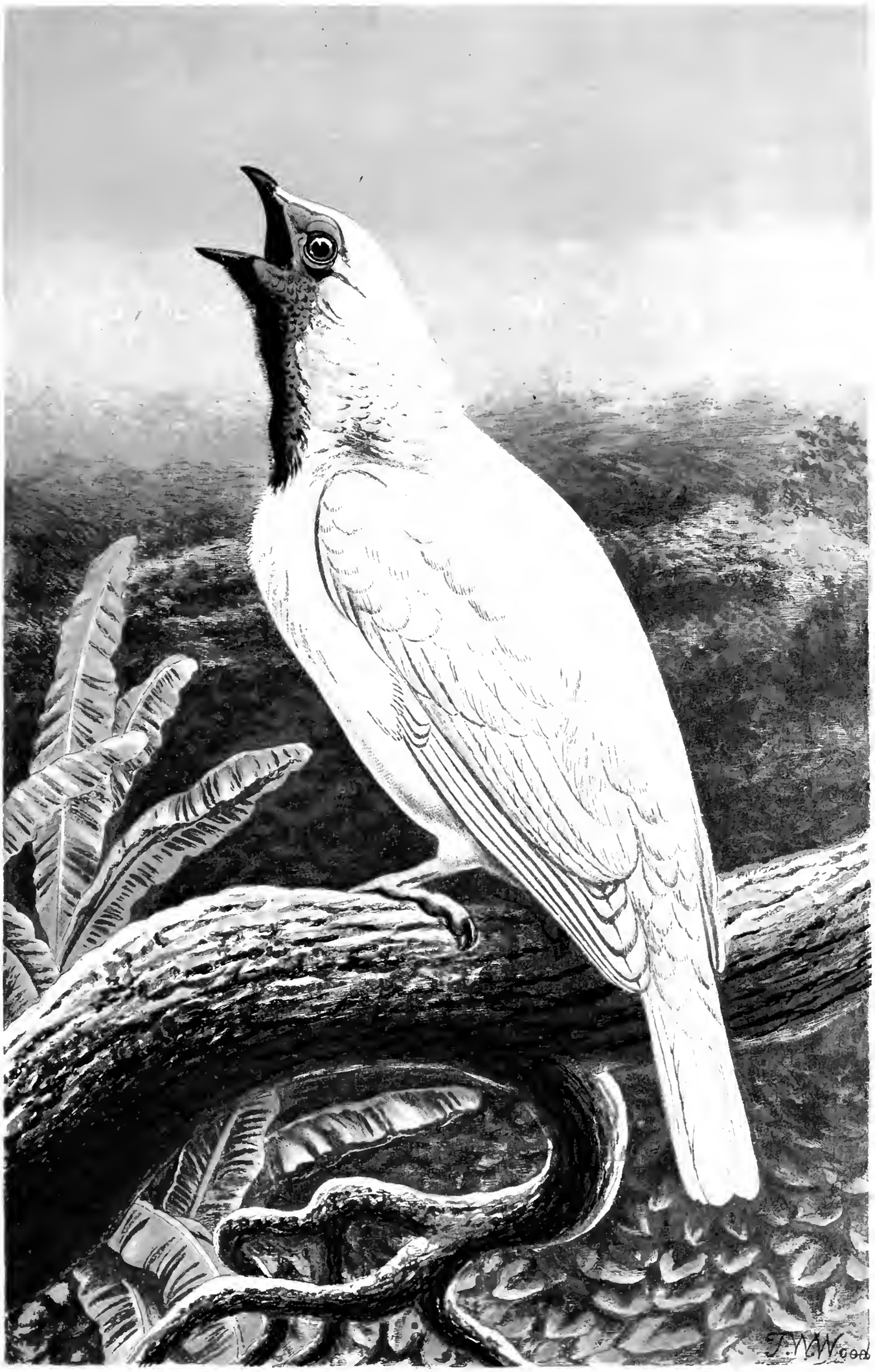
WHITE-HEADED WOODPECKER.

Picus albolarvatus. (Baird.)



THE KING PENGUIN.

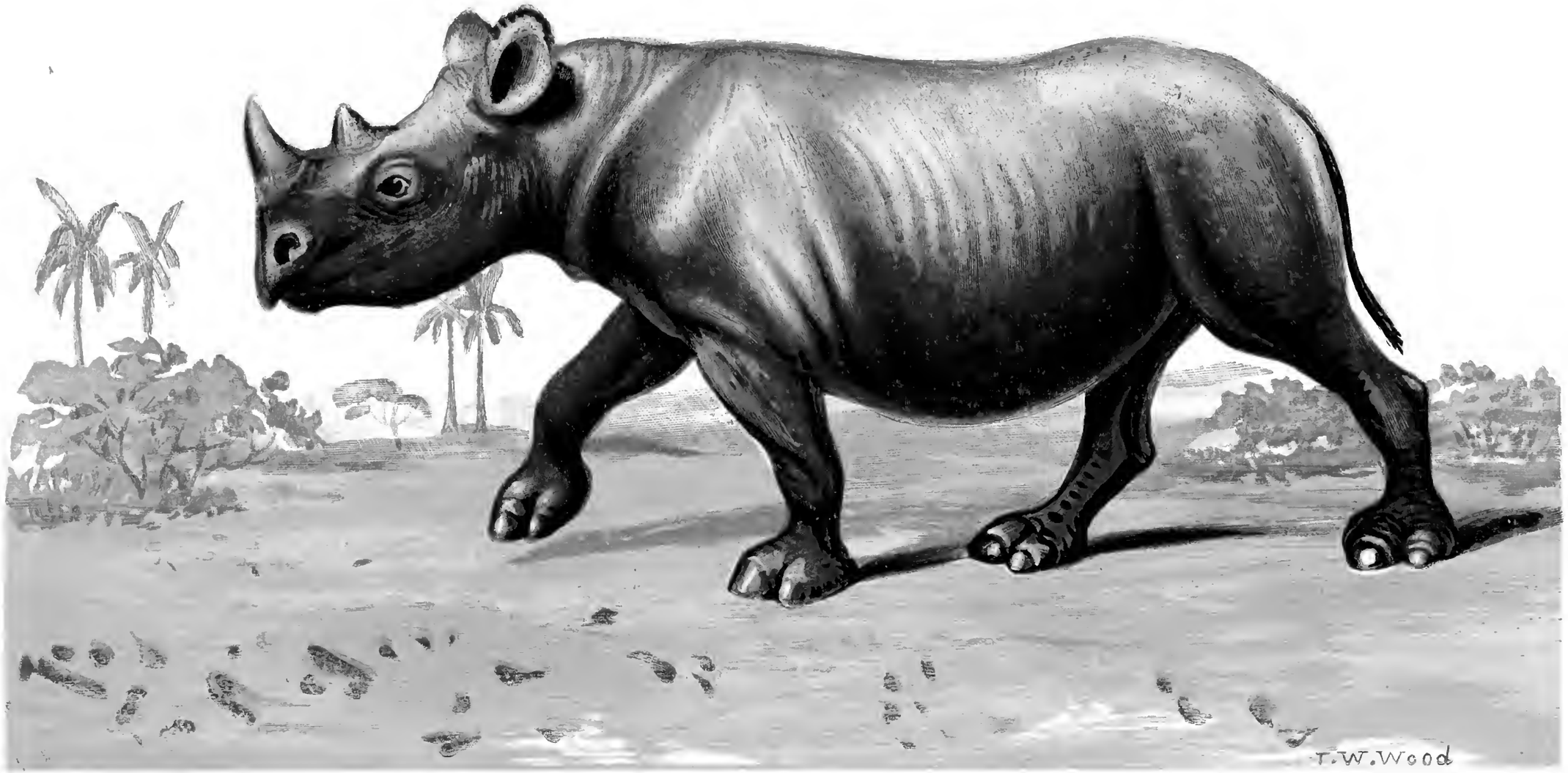
Aptenodytes Pennantii.



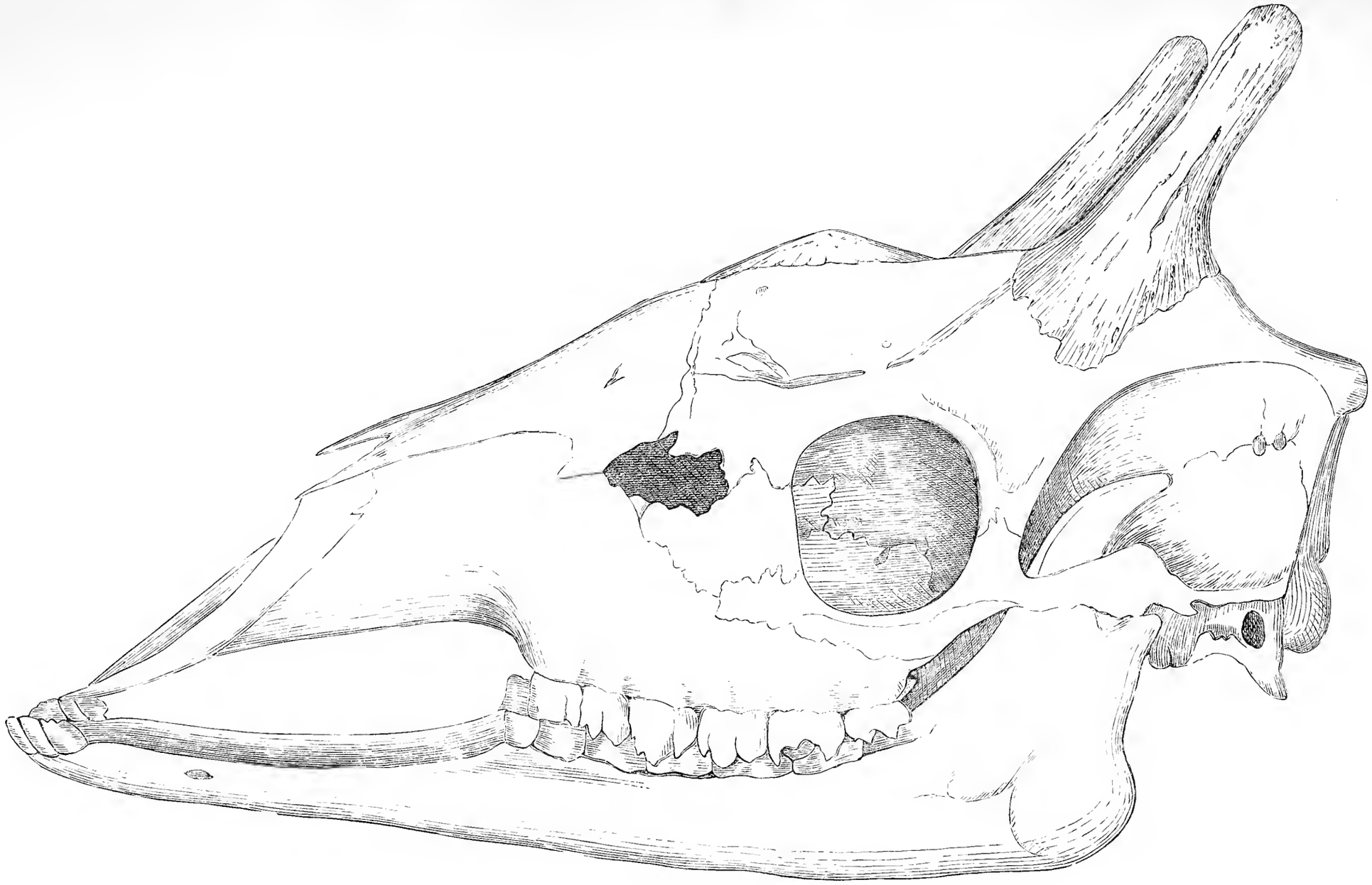

NAKED-THROATED COTINGA.

Chasmorhynchus nudicollis.

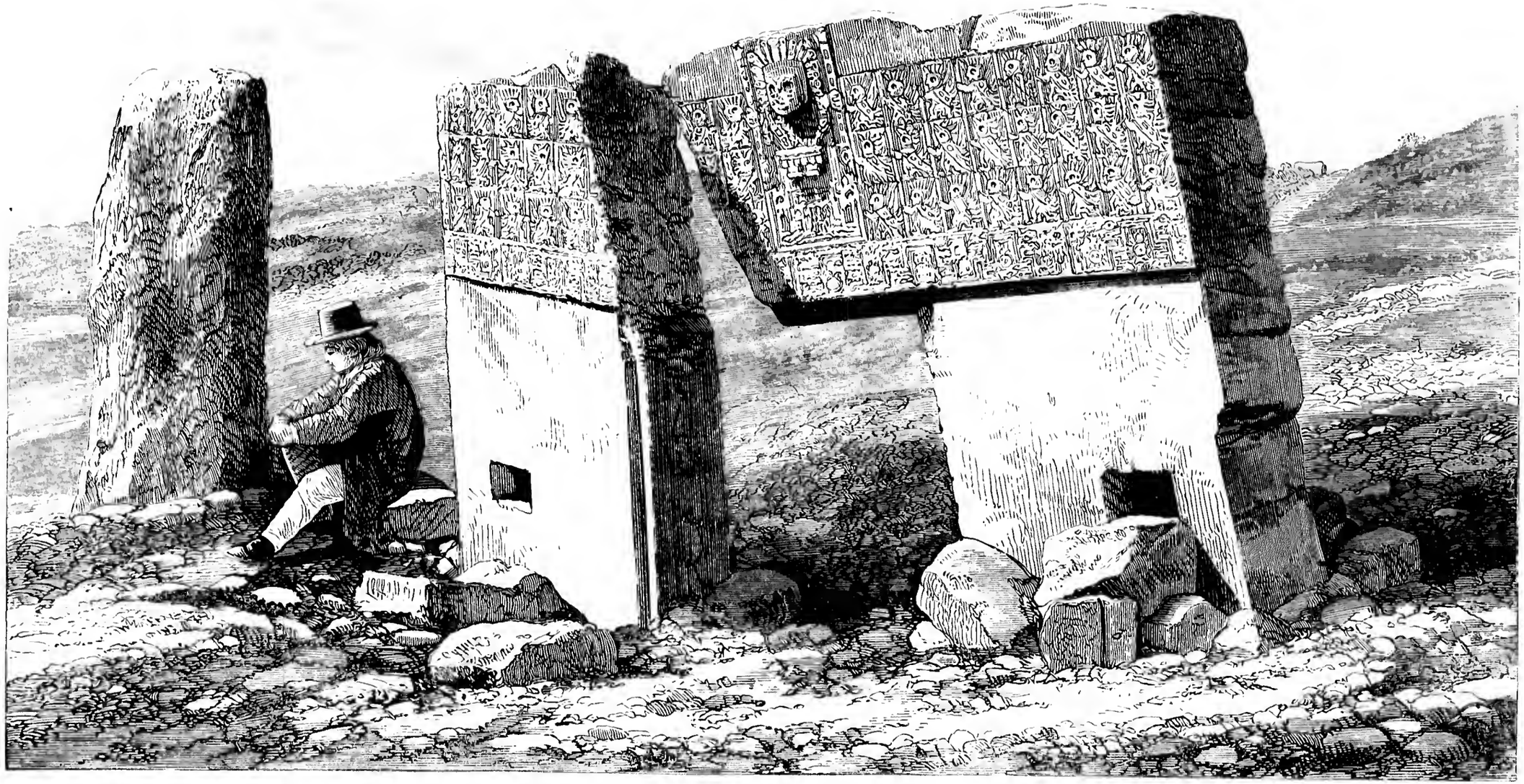
A NEW MUSK-RAT.
Fiber osoyoosensis, Lord.

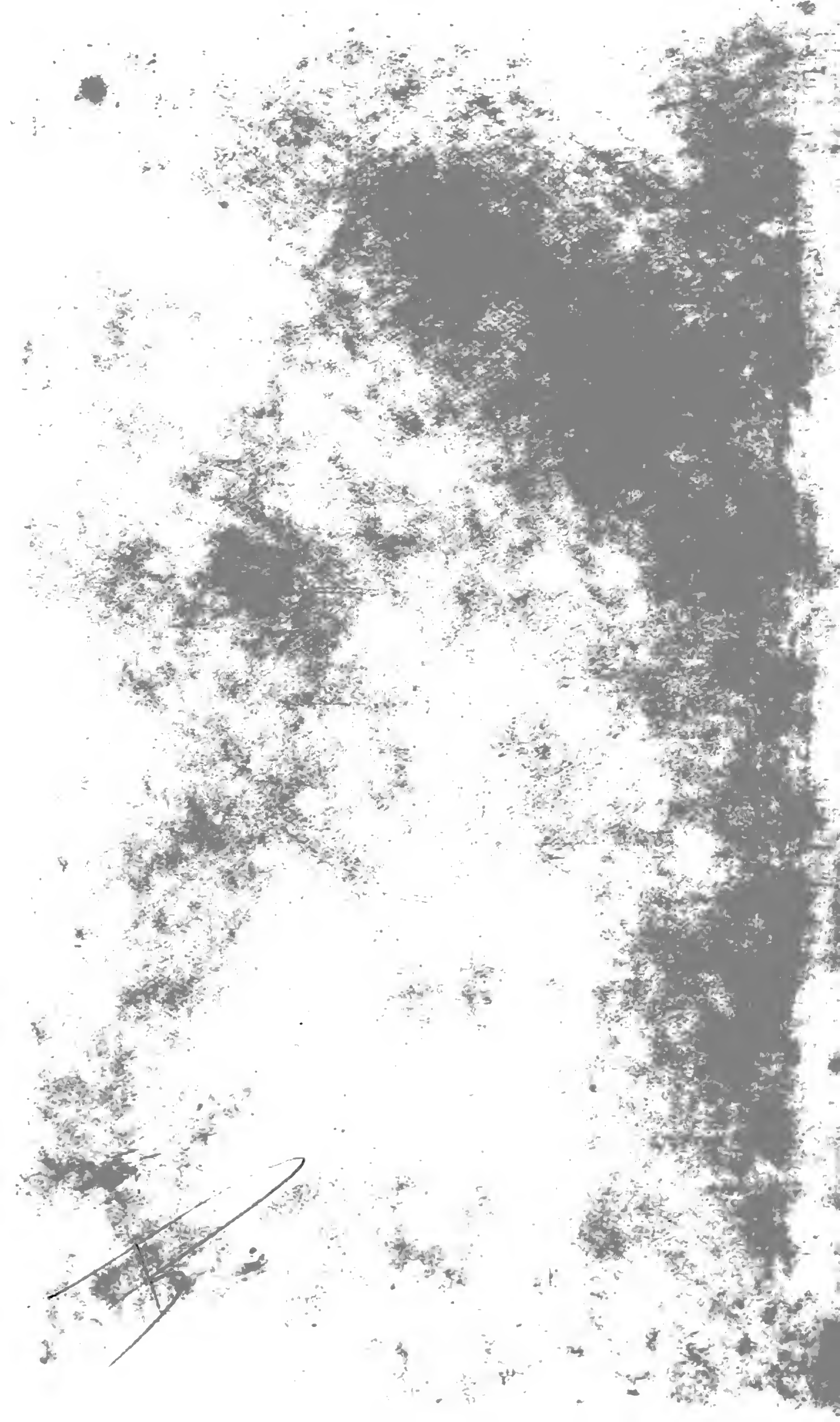



TWO-HORNED RHINOCEROS.—RHINOCEROS BICORNIS



Skull of a young Giraffe, showing the third or incisor horn.



Helsby & Co., photo.

Sculptured Monolith Portal at Tia Huanaco, Bolivia.